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Genève, le 20 septembre 1922.

Société des Nations.

Organisation des Communications et du Transit.

RAPPORT PRÉSENTÉ A L'ASSEMBLÉE PAR LA DEUXIÈME COMMISSION

RAPPORTEUR : M. LE Dr MINEITCIRO ADATCI.

League of Nations.

Organisation for Communications and Transit.

REPORT PRESENTED TO THE ASSEMBLY BY THE SECOND COMMITTEE

RAPPORTEUR : Dr. MINEITCIRO ADATCI.

ORGANISATION DES COMMUNICATIONS ET DU TRANSIT.

RAPPORT

présenté à l'Assemblée au nom de la deuxième Commission

par le

Dr MINEITCIRO ADATCI, REPRÉSENTANT DU JAPON,

sur

l'œuvre de l'Organisation des communications et du transit entre la deuxième et la troisième Assemblée.

L'Assemblée est saisie, cette année, de deux rapports de la Commission consultative et technique des communications et du transit sur l'œuvre de l'Organisation des communications et du transit entre la deuxième et la troisième Assemblée, qui lui ont été transmis par le Conseil. L'un de ces rapports donne un exposé d'ensemble de l'œuvre accomplie jusqu'à la toute dernière session de la Commission des communications et du transit. Le deuxième rapport traite des matières qui ont fait l'objet des délibérations de la dernière session terminée à la veille de l'Assemblée.

Il ne paraît pas nécessaire de reprendre en détail les questions qui y sont traitées, puisque ces documents sont sous les yeux mêmes des membres de l'Assemblée. L'Assemblée remarquera d'ailleurs que, malgré l'importance des matières traitées, malgré le nombre des sujets dont l'étude au moins a été entreprise, aucune proposition, aucune recommandation définie n'est faite par la Commission des communications et du transit à l'Assemblée de la Société. Aucune action positive proprement dite n'est demandée à l'Assemblée.

Il n'y a pas lieu de s'en étonner. La situation de l'Organisation des communications et du transit vis-à-vis du Conseil et de l'Assemblée est assez différente de celle où se trouvent actuellement les autres organisations techniques de la Société. L'Organisation des communications et du transit a revêtu, depuis la Condérence de Barcelone, et conformément aux résolutions de la première Assemblée, la forme définitive normale des organisations techniques régulières de la Société. Sa Commission consultative est une commission composée d'hommes d'une compétence reconnue, désignés par les gouvernements de pays dont la plupart furent élus à la Conférence de Barcelone par la collectivité des Etats membres de la Société. Une Commission ainsi constituée, nettement différente des organisations d'experts désignées nommément par le Conseil, telles que le Comité provisoire économique et financier, ou telles que le Comité provisoire d'hygiène, a sa responsabilité propre, son autonomie d'action dans les limites définies avec précision par la résolution de la première Assemblée en date du 8 décembre 1920 sur les relations entre les organisations techniques, le Conseil et l'Assemblée de la Société. Sous réserve du droit de contrôle du Conseil et de l'Assemblée, elle peut communiquer directement aux gouvernements ses recommandations et ses avis. Le rôle de l'Assemblée, en face d'une telle organisation, est de se tenir rigoureusement informée du travail accompli, de prendre conscience de la direction et du développement de l'œuvre, afin de signaler à l'Organisation elle-même, s'il y a lieu, les lacunes ou les correctifs nécessaires. L'Assemblée paraît donc devoir se donner à ce propos, comme principale tâche, d'examiner si l'Organisation des communications et du transit, régulièrement constituée et responsable, a, pendant l'année écoulée, entre deux sessions de l'Assemblée, exactement compris la mission qui lui est attribuée en vertu du Pacte, par les résolutions de l'Assemblée qui l'ont instituée.

Si l'Assemblée se pose cette question, elle y trouvera sans peine la réponse dans les rapports mêmes, suffisamment clairs, concis, tout en donnant sur tous les aspects de l'œuvre en cours tous les détails nécessaires qui lui ont été soumis.

La première tâche de la Commission consultative et technique des communications et du transit était de veiller à l'application des décisions prises dans des conférences antérieures. Il ne servirait de rien, en effet, de s'engager dans des œuvres nouvelles, si les textes issus des travaux précédents restaient seulement des textes sans valeur d'application réelle. L'Organisation des communications et du transit a déjà une tradition et un passé. Dès octobre 1920, sous les auspices de son Comité provisoire, des recommandations fort importantes ont été adoptées par une conférence sur les passeports, formalités douanières et billets directs. La Conférence générale de Barcelone, dans un domaine beaucoup

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plus large, a élaboré une série de conventions et de recommandations qui forment la charte même de l'Organisation des communications et du transit, embrassant tous les continents du monde, et la première mise en œuvre de l'article 23 *e*) du Pacte.

L'Assemblée apprendra avec satisfaction, dans les rapports de l'Organisation des communications et du transit, que la mise en pratique des vœux et décisions de ces deux conférences suit sa marche normale et est en progrès constant. A la suite de l'enquête décidée, l'année dernière, par l'Assemblée, il a été reconnu et noté spécialement par la Conférence économique internationale de Gênes, que la plupart des Etats mettaient en application la majeure partie des recommandations de la Conférence des passeports, dont les textes ont servi, d'ailleurs, de base même à une convention internationale conclue à Gratz entre certains Etats successeurs de la monarchie austro-hongroise. Quant aux recommandations et conventions de Barcelone, l'Assemblée ne manquera pas de se féliciter que la Conférence de Gênes ait à nouveau sanctionné leur importance pour la reconstruction économique de l'Europe. Elle prendra acte de ce que plus de cinq Etats les ayant ratifiées, la Convention générale sur la liberté du transit et la Convention générale sur le régime des voies navigables d'intérêt international et le protocole additionnel à cette Convention entrent en vigueur à brève échéance. Il ne lui échappera pas, sans doute, que, si les déclarations faites par les représentants de tous les gouvernements présents à la Conférence de Gênes permettent d'attendre que la Convention sur la liberté du transit sera bientôt d'une application très générale, certaines difficultés existent encore en ce qui touche l'extension de la Convention générale sur le régime des voies navigables d'intérêt international ; mais, à ce sujet, elle ne pourra que trouver particulièrement heureux les derniers efforts faits à sa récente session par la Commission consultative et technique des communications et du transit, attirant l'attention des gouvernements intéressés, et particulièrement des gouvernements participant à la rédaction de l'Acte de navigation d'une même voie d'eau d'intérêt international, sur l'opportunité de s'assurer si ce ne sont pas de simples malentendus qui gênent les ratifications ou adhésions, et invitant le Secrétaire général de la Société à faciliter, par tous les moyens à sa disposition, toutes ententes entre Etats de cette nature, qui ne doivent pas porter atteinte aux droits des Etats tiers parties à la Convention, et dont le principe entièrement conforme à celui de la Société des Nations ne peut qu'être particulièrement approuvé par l'Assemblée.

L'Organisation des communications et du transit ne s'est pas laissée absorber par ses tâches de gardienne des décisions antérieures. Elle a parfaitement compris que son rôle était d'engager toutes études nouvelles susceptibles de donner au principe de la liberté des communications inscrit dans le Pacte, toute la valeur et tout le développement dont il est capable. Certaines de ces études étaient déjà dictées, il est vrai, par des décisions antérieures, soit de la Conférence de Barcelone, soit de l'Assemblée, qui s'appuyaient même sur certaines stipulations des traités. Il en est ainsi des études relatives à la Convention sur le régime international des voies ferrées, dont le plan actuel de travail est exposé dans le deuxième rapport de la Commission et qui promet, par sa généralité et son ampleur, d'être une œuvre digne de la Société. Il en est ainsi, également, de l'examen auquel se livre la Commission des communications et du transit du vœu adopté par la Conférence de Barcelone, au sujet de l'utilisation internationale de l'énergie hydroélectrique. Il en est ainsi, enfin, des premiers efforts qui semblent déjà particulièrement heureux, auxquels s'est livrée la Commission des communications et du transit, pour coopérer à l'application du principe de l'équitable traitement du commerce, de concert avec la Commission économique de la Société, élaborant déjà certaines règles qui, inscrites dans la Convention générale sur le régime des voies ferrées, assureraient, dans les transports par chemin de fer, un traitement plus équitable du commerce dans tous les pays contractants, et dressant la première ébauche d'une convention sur le régime international des ports prévue dans le traité de paix et demandée à nouveau par la Conférence de Gênes, convention dont il y a lieu de souhaiter qu'elle puisse être soumise, en même temps que le projet de convention sur le régime international des voies ferrées, à la prochaine Conférence générale des communications et du transit, qui doit se tenir dans le courant de l'année 1923.

En revanche, c'est de sa propre initiative que l'Organisation des communications et du transit a, dans tous les domaines de transports, entrepris des études dont beaucoup, sans doute, aboutiront à des progrès pratiques et rendront à la vie économique de tous les pays des services appréciables. Jaugeage des bateaux en navigation intérieure, jaugeage des navires employés à la navigation maritime, unification du droit privé en navigation intérieure, unification du droit privé relatif aux transports aériens, protection contre la propagation des maladies épidémiques par voie d'eau, contrôle du trafic de l'opium dans les ports francs — toutes ces questions, l'Organisation des communications et du transit en a commencé l'examen en suivant des méthodes dont il y a lieu de signaler particulièrement la prudence et le souci extrême, que l'Assemblée appréciera, de se tenir en contact étroit non seulement avec les gouvernements, mais encore avec tous les organismes techniques qualifiés, qu'ils relèvent ou non de la Société des Nations : Commission consultative de l'opium, Comité provisoire d'hygiène, Commissions fluviales de l'Elbe, de l'Oder, du Danube et pour la navigation du Rhin, Commission permanente du régime des eaux du Danube, Commission internationale de navigation aérienne, etc.

Tel est, dans ses grandes lignes, le bilan de l'œuvre de l'Organisation des communications et du transit entre la 2me et la 3me Assemblée. Une œuvre de cette nature est une œuvre de longue haleine et l'année qui vient de s'écouler a été remplie par une de ces périodes toujours nécessaires, qui sont plutôt des périodes de travail de préparation et de maturation que des périodes où ont été acquis des résultats précis et définitifs.

L'Organisation des communications et du transit a pris conscience de ses méthodes et a suivi avec prudence et continuité le chemin qu'elle s'est tracé. Elle s'est assuré le concours des experts spécialistes qui lui étaient nécessaires. Conformément à la résolution adoptée par la dernière Assemblée, elle a notamment nommé deux experts nouveaux ressortissants d'Etats riverains du Danube. Comprenant la nécessité d'une large collaboration internationale, elle a demandé au Gouvernement allemand la désignation d'un expert en questions de chemins de fer et le Gouvernement allemand n'a pas manqué

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de s'associer à une telle œuvre d'entente internationale. A quel point l'Organisation des communications et du transit a mérité déjà, après une tradition si courte et pourtant nullement négligeable, la confiance des gouvernements, la conférence de Gênes nous en est une preuve ; elle ne s'est pas bornée, dans ses résolutions relatives aux transports, à féliciter la Société des Nations de l'œuvre déjà menée à bonne fin à Paris ou à Barcelone ou à confier à l'Organisation des communications et du transit certaines tâches nouvelles, elle est allée plus loin : elle a désiré que notre Organisation soit la continuatrice de ses propres efforts et que lui soit confié le soin d'assurer la mise à exécution de l'ensemble de toutes ses résolutions.

L'Assemblée se félicitera, sans aucun doute, que le Conseil, sur ce point, ait donné satisfaction aux vœux de la Conférence de Gênes, et elle ne manquera pas non plus d'apprécier le soin avec lequel, à sa dernière session, la Commission des communications et du transit a procédé à une analyse détaillée des résolutions de la Conférence de Gênes, si importantes pour la reconstruction économique de l'Europe, ainsi que les mesures que l'Organisation des communications et du transit a décidé de prendre pour assurer efficacement le développement de cette œuvre. Il ne paraît pas douteux que, pour l'application des résolutions de la Conférence de Gênes, transmises par le Conseil, la Commission des communications et du transit ne soit appelée à se préoccuper d'un grand nombre de questions pratiques touchant les transports en Europe, et, par là, à rendre de nouveaux services. Pour le faire, elle devra, ainsi qu'elle l'a prévu, développer son organisation d'une manière équitable. Dans quelles mesures ce développement affecte la question des ressources budgétaires mises à sa disposition, la Commission compétente de l'Assemblée l'a déjà apprécié.

La Commission présente à l'agrément de l'Assemblée trois résolutions qu'elle a adoptées à l'unanimité : l'une résumant les idées générales exprimées ci-dessus ; les deux autres touchant des points plus particuliers. L'attention de la Commission s'est, en effet, spécialement portée sur les conditions dans lesquelles se tiendront deux conférences relatives à des questions de communications et de transit, dont la réunion est prévue dès maintenant.

L'une de ces conférences est la 2me Conférence générale mentionnée plus haut et qui est organisée par la Société des Nations elle-même. L'attention de la Commission a été attirée sur le grand intérêt qu'il y a pour le succès d'une telle conférence à ce que les documents qui doivent servir de base à la discussion soient soumis aux gouvernements assez tôt pour qu'ils puissent les étudier à loisir. Il a paru utile de fixer un délai dans une résolution précise.

L'autre est la Conférence des Administrations de chemins de fer convoquée et organisée par les Administrations de chemins de fer françaises, conformément aux décisions de la Conférence de Gênes, décisions dont l'Organisation des communications et du transit de la Société est chargée de suivre la mise à application. Il a semblé à la Commission que, pour permettre à l'Organisation des communications et du transit de remplir sa tâche, non moins qu'en vue de pouvoir mettre à la disposition de cette Conférence toutes les informations dont la préparation de la Convention générale sur le régime international des chemins de fer a mis à même l'Organisation des communications et du transit de la Société de bénéficier, il serait particulièrement utile que fût assurée entre notre Organisation et la Conférence une liaison efficace et qu'à cette fin, la représentation de l'Organisation des communications et du transit y fût assurée.

Il m'est d'ailleurs particulièrement agréable de communiquer à l'Assemblée que, depuis que le projet de résolution en ce sens a été adopté par la Commission, la délégation française a fait savoir que, d'après ses dernières informations, les Administrations de chemins de fer françaises avaient devancé les désirs de l'Assemblée et se proposent d'inviter à la Conférence organisée par elles, l'Organisation des communications et du transit de la Société.

RÉSOLUTION I.

L'Assemblée, après avoir pris connaissance du premier et du deuxième rapport de la Commission consultative et technique des communications et du transit, sur l'œuvre de l'Organisation des communications et du transit entre la 2me et la 3me Assemblée,

Prend acte avec satisfaction

a) des progrès accomplis dans la mise en pratique des recommandations adoptées par la Conférence des passeports, formalités douanières et billets directs tenue à Paris, en octobre 1920, ainsi que des conventions et recommandations adoptées à la Conférence de Barcelone ;

b) des efforts entrepris par l'Organisation des communications et du transit en vue de faciliter les ratifications des conventions de Barcelone, ou des adhésions à ces conventions ;

c) des études engagées pour l'élaboration de la Convention sur le régime international des voies ferrées, ainsi que d'une Convention générale sur le régime international des ports, et pour l'application, dans le domaine des transports, du principe de l'équitable traitement du commerce ;

d) des mesures prises en vue de donner suite aux résolutions de la Conférence de Gênes, transmises à l'Organisation des commiunications et du transit par le Conseil de la Société et tendant à développer la restauration matérielle des transports en Europe ;

Invite l'Organisation des communications et du transit, qui tiendra au cours de l'année 1923 une deuxième Conférence générale à Genève, suivant la recommandation de la Conférence générale de Barcelone, approuvée par le Conseil de la Société, dans sa séance du 18 juin 1921, à continuer, selon les méthodes qui l'ont inspirée jusqu'ici, l'exercice de la mission qui lui a été confiée et compte que les études actuellement entreprises seront poussées assez activement pour que toutes celles d'entre elles qui paraîtraient susceptibles de donner lieu à un accord international puissent faire l'objet de propositions précises à soumettre immédiatement à la dite Conférence.

RÉSOLUTION II.

L'Assemblée recommande à l'Organisation des communications et du transit de faire parvenir aux gouvernements intéressés le projet de conventions ou de recommandations qu'elle aura préparé au moins trois mois avant la réunion de la Conférence qui doit se tenir dans le cours de l'année 1923.

RÉSOLUTION III.

L'Assemblée se félicite de la très prochaine réunion à Paris de la Conférence des Administrations de chemins de fer, convoquée par les Administrations de chemins de fer françaises, conformément aux décisions de la Conférence de Gênes, et attire l'attention du Conseil sur l'opportunité que toutes mesures nécessaires soient prises pour assurer la représentation à cette Conférence de l'Organisation des communications et du transit de la Société, chargée, en vertu des mêmes décisions de la Conférence de Gênes, acceptées par le Conseil et par l'Assemblée, de suivre le développement des mesures prises pour leur donner effet.

ORGANISATION FOR COMMUNICATIONS AND TRANSIT

REPORT

presented to the Assembly on behalf of the Second Committee

by

Dr. Mineitciro Adatci, Representative of Japan,

on the

Work of the Organisation for Communications and Transit between the Second and Third Assemblies.

The Assembly has had before it this year two reports transmitted to it by the Council from the Advisory and Technical Committee for Communications and Transit, on the work of the Organisation for Communications and Transit between the Second and Third Assemblies. The first report contains a general statement of the work of the Committee for Communications and Transit up to its last session. The second report deals with the subjects discussed at the last session, which ended just before the opening of the Assembly.

It would seem unnecessary to give a detailed account of the questions dealt with in these reports, since the latter have now been laid before the Members of the Assembly. The Assembly, moreover, will observe that, in spite of the importance of the questions dealt with and the variety of the subjects, the investigation of which, at least, has been undertaken, no proposal nor definite recommendation has been made to the Assembly of the League by the Committee for Communications and Transit. The Assembly has not been requested to take any special action, strictly so called.

This need not cause surprise. The position of the Organisation for Communications and Transit with regard to the Council and the Assembly differs to a certain extent from that at present occupied by the other technical organisations of the League. The Organisation for Communications and Transit assumed, after the Barcelona Conference and in accordance with the Resolutions of the First Assembly, the final normal form of one of the regular technical organisations of the League. Its Advisory Committee is a Committee the members of which are men of achnowledged competence appointed by the Governments of the various countries, and the majority of whom were elected at the Barcelona Conference by the States Members of the League collectively. A Committee constituted in this manner, and differing markedly from committees consisting of technical experts nominated by the Council, such as the Advisory Economic and Financial Committee or the Advisory Health Committee, has a responsibility of its own and freedom of action within the limits defined with precision in the Resolution of the First Assembly dated December 8th, 1920, on the relations between Technical Organisations, the Council and the Assembly of the League. Subject to the right of control exercised by the Council and the Assembly, it can communicate its recommendations and its opinions direct to Governments. The role of the Assembly in connection with such an organisation consists of keeping itself fully informed of the work accomplished and in noting the direction and development of this work in order to point out to the organisation itself, should occasion arise, any omissions or any improvements which may be necessary. It would appear, therefore, that the principal task of the Assembly is to consider whether the Organisation for Communications and Transit, as a regularly constituted and responsible body, has, during the year which has elapsed between the last two sessions of the Assembly, correctly interpreted the duties assigned to it in accordance with the Covenant by the Assembly Resolutions by which it was instituted.

If the Assembly considers this question, it will have no difficulty in finding the reply in the Reports which have been submitted to it, and which are sufficiently clear and concise, while giving all the details necessary regarding every aspect of the work which is being carried out.

The first task of the Advisory and Technical Committee for Communications and Transit was to supervise the carrying out of the decisions taken at previous conferences. It would indeed be useless to undertake fresh work if the texts which are the result of former labours had not actually been applied. The Organisation for Communications and Transit has already a tradition and a past. In October

1920, under the auspices of its Provisional Committee, very important recommendations were adopted by a Conference on Passports, Customs Formalities, and Through Tickets. The General Conference held at Barcelona drew up, within a much wider field, a series of conventions and recommendations, embracing all continents which form the charter of the Organisation for Communications and Transit and the first definite results of Article 23 (e) of the Covenant.

The Assembly will note with satisfaction in the reports of the Organisation for Communications and Transit that the work of putting the recommendations and decisions of these two conferences into practice is pursuing its normal course and is making steady progress. As a result of the investigation, decided upon last year by the Assembly, it has been recognised and specially noted by the International Economic Conference at Genoa that most of the States were giving effect to the majority of the recommendations of the Conference on Passports, the texts of which have, moreover, been used as the basis of an international convention concluded at Gratz between certain of the Succession States of the Austro-Hungarian Monarchy. With regard to the Barcelona recommendations and conventions, the Assembly must feel gratified that the Genoa Conference has once more confirmed their importance for the economic reconstruction of Europe. The Assembly will note that, as more than five States have ratified them, the General Convention on Freedom of Transit and the General Convention on the Regime of Navigable Waterways of International Concern and the Additional Protocol to this Convention are shortly to come into force. It will also observe that, although the declarations made by the representatives of all the Governments present at the Genoa Conference justify the hope that the Convention on Freedom of Transit will soon be very widely applied, certain difficulties still exist as regards the extension of the General Convention on the Regime of Navigable Waterways of International Concern. With regard to this subject, however, the Assembly cannot fail to find special grounds for satisfaction in the latest efforts made at its recent session by the Advisory and Technical Committee for Communications and Transit, when it drew the attention of the Governments concerned, and especially those Governments taking part in the drafting of the Navigation Act for a waterway of international concern, to the advisability of ascertaining whether the ratifications or adhesions are not being impeded merely by misunderstandings, and when it requested the Secretary-General of the League to facilitate by all the means in his power the conclusion of any agreements of this nature between States, it being understood that such agreements should in no way derogate from the rights of other States which are Contracting Parties to the Convention, and the principle of which, as it is in entire harmony with that of the League of Nations, will not fail to meet with the special approval of the Assembly. The energies of the Organisation for Communications and Transit have not been entirely absorbed in the work of supervising previous decisions. It was fully aware of the fact that its role consisted in undertaking any new investigations likely to give effect to and develop to the greatest extent possible the principle of freedom of communications embodied in the Covenant.

Some of these investigations were, indeed, imposed upon it by previous decisions, either of the Barcelona Conference or the Assembly, which were based on certain provisions of the treaties. This is the case with regard to the investigations dealing with the Convention on the International Regime of Railways, of which the actual scheme of work is set out in the Committee's second report, and which, in view of its general character and wide range, will probably be an undertaking worthy of the League. The same may be said of the investigations now being carried out by the Committee for Communications and Transit with regard to the recommendations adopted by the Barcelona Conference on the international utilisation of hydro-electric power. Finally, the same also is true of the first efforts (which appear to be specially successful) made by the Committee for Communications and Transit to co-operate with the Economic Committee of the League in applying the principle of equitable treatment for commerce. These efforts have already led to the framing of certain rules which, incorporated in the General Convention on the Regime for Railways, would ensure more equitable commercial treatment for railway transport in all the contracting countries, and drawing up the first outlines of a Convention on the International Regime of Ports, provided for in the Treaty of Peace and once more requested by the Genoa Conference — a convention which it would be desirable to submit at the same time as the draft Convention on the International Regime of Railways to the next General Conference on Communications and Transit, to be held during the year 1923.

On the other hand, it is on its own initiative that the Organisation for Communications and Transit has, within all fields of transport, undertaken investigations, of which many, no doubt, will result in practical progress and will render valuable services to the economic life of all countries. The tonnage measurement of vessels employed in inland navigation, the tonnage measurement of vessels employed in maritime navigation, the unification of private law in inland navigation, the unification of private law relating to air transport, protection against the dissemination of epidemics by traffic on waterways, control of the opium traffic in free ports — the investigation of all these questions has been begun by the Organisation for Communications and Transit, following methods which are especially deserving of note from the point of view of the prudence and extreme care (which the Assembly will appreciate) displayed in keeping in close touch not only with the Governments but also with all the competent technical organisations, whether they are dependent on the League of Nations or not : the Advisory Committee on Opium; the Advisory Health Committee; the River Commissions of the Elbe, Oder and Danube, and the Central Commission of the Rhine; the Hydraulic Danube Commission; the International Commission for Air Navigation, etc.

Such are, in broad outlines, the results of the work of the Organisation for Communications and Transit between the Second and Third Assemblies. Work of this nature must be of long duration, and the year which has just passed has been one of those periods which are always necessary and which are rather periods of preparation and growth than periods fruitful in actual and definite results.

The Organisation for Communications and Transit has decided upon its methods and has pru-

dently and consistently pursued the path which it has marked out for itself. It has obtained the assistance of the technical experts which it required. In accordance with the Resolution adopted by the last Assembly, it has, in particular, appointed two additional experts, nationals of the riparian States of the Danube. Understanding the need for international co-operation on broad lines, it requested the German Government to appoint an expert on railway matters, and the German Government readily associated itself with a work of international concern of this nature. To what extent the Organisation for Communications and Transit has already deserved, in its short but by no means unimportant career, the confidence of Governments is proved by the Genoa Conference. The latter did not confine itself, in its resolutions relating to transport, to congratulating the League of Nations on the work so successfully carried out at Paris or at Barcelona, or to entrusting the Organisation for Communications and Transit with certain new tasks; it went further, and desired that our Organisation should continue its own work and that the task of carrying out the whole of its resolutions should be entrusted to it.

The Assembly will undoubtedly note with satisfaction that the Council, in this matter, has complied with the recommendations of the Genoa Conference, and it will also appreciate the care with which, at its last session, the Committee for Communications and Transit made a detailed analysis of the resolutions of the Genoa Conference — so important for the economic reconstruction of Europe — and of the measures which the Organisation for Communications and Transit has decided to take to ensure the effective development of this work. There would seem to be no doubt that, as regards the application of the resolutions of the Genoa Conference transmitted by the Council, the Committee for Communications and Transit will be called upon to deal with a large number of practical questions with regard to transport in Europe and thereby to render fresh services. In order to discharge these duties, the Committee will be obliged, as it anticipated, to develop its organisation in an equitable manner. The competent Committee of the Assembly has already been able to appreciable to what extent this development affects the question of the budgetary resources placed at its disposal.

The Committee submits to the Assembly for approval three resolutions which it has unanimously adopted : the first summarising the general ideas stated above, and the other two referring to more specific points. The Committee considered, in particular, the conditions under which two conferences concerning questions of communications and transit would be held ; the provision has already been made for the convening of these two conferences.

One of these conferences is the second General Conference mentioned above and organised by the League of Nations itself. The attention of the Committee has been drawn to the great importance for the success of such a conference of submitting the documents which will serve as a basis for discussion to the Governments sufficiently early to enable them to study these documents at leisure. It has been thought advisable to fix a time limit in a definite resolution.

The second is the Conference of Railway Administrations convened and organised by the French railway administrations in accordance with the decisions of the Genoa Conference, the application of which the Communications and Transit Organisation of the League has been intructed to supervise. In the opinion of the Committee, it would be particularly useful to ensure an effective liaison between our organisation and the Conference, and to secure for this purpose the representation at the Conference of the Organisation for Communications and Transit, in order to allow that Organisation to fulfil its duties, and in order to place at the disposal of the Conference all the information which the Communications and Transit Organisation of the League made use of in the preparation of the General Convention on the International Regime of Railways.

I have, moreover, great pleasure in informing the Assembly that, since the draft resolution to this effect was adopted by the Committee, the French Delegation has announced that, according to the latest information, the French railway administrations have forestalled the wish of the Assembly, and propose to invite the Communications and Transit Organisation of the League to the Conference which they have organised.

RESOLUTION I.

The Assembly, after taking cognisance of the first and second reports of the Advisory and Technical Committee for Communications and Transit on the work of the organisation for Communications and Transit between the Second and the Third Assembly,

Notes with satisfaction :

(*a*) the progress achieved in giving practical effect to the recommendations adopted by the Conference on Passports, Customs Formalities and Through Tickets, held in Paris, in October 1920, and also to the conventions and recommendations adopted at the Barcelona Conference ;

(*b*) the efforts made by the Organisation for Communications and Transit to facilitate the ratifications of the Barcelona Conventions or the adhesions to those conventions ;

(*c*) the investigations undertaken for the purpose of drawing up the Convention on the International Regime of Railways, as well as a General Convention on the International Regime of Ports and for the purpose of applying in the domain of transit the principle of equitable treatment for commerce ;

(*d*) the measures taken with a view to carrying out the resolutions of the Genoa Conference, transmitted to the Organisation for Communications and Transit by the Council of the League with the object of developing the restoration of the actual means of transit in Europe, and :

Invites the Organisation for Communications and Transit, which will hold a second General Conference at Geneva during the year 1923, in accordance with the recommendation of the General Conference of Barcelona, approved by the Council of the League at its meeting of June 18th, 1921,

to continue, on the lines of its present methods, to carry out the duties with which it has been entrusted, and believes that the investigations now undertaken will be prosecuted with sufficient energy to ensure that all those investigations which appear likely to give rise to an international agreement may form the subject of definite proposals to be submitted without delay to that Conference.

RESOLUTION II.

The Assembly recommends the Organisation for Communications and Transit of the League to transmit to the various Governments concerned the draft Conventions or recommendations which it has drawn up at least three months before the meeting of the Conference which shall be held during 1923.

RESOLUTION III.

The Assembly takes note with satisfaction of the imminent meeting in Paris of the Conferen e of Railway Administrations, convened by the French railway administrations, in conformity with the decisions of the Genoa Conference, and draws the attention of the Council to the desirability that measures should be taken for the representation of the Communications and Transit Organisation of the League at the Conference in question, which organisation has been entrusted, in virtue of the decisions above referred to (which have been accepted by the Council and the Assembly), with the task of examining the progress achieved in carrying them out.

L47H
1922²

(Distributed to the Council
and the Members of the League.)

C. 712. M. 424. 1922. VIII.

GENEVA,
November 1st, 1922.

League of Nations.

Advisory and Technical Committee
for Communications and Transit.

MINUTES
OF THE
THIRD SESSION
HELD AT
GENEVA, AUGUST 30th - SEPTEMBER 2nd, 1922.
(WITH ANNEXES.)

Advisory and Technical Committee for Communications and Transit.

The Committee is at present composed as follows:

Chairman:

His Excellency M. Benjamin FERNANDEZ Y MEDINA (appointed by the Government of Uruguay). Minister Plenipotentiary in Spain.

Vice-Chairmen:

M. A. CHARGUERAUD (appointed by the Government of France). President of the Central Commission for the navigation of the Rhine.

Dr. TCHEOU-WEI (appointed by the Government of China). Technical Adviser to the Chinese Delegation at the Assembly and the Council of the League of Nations. Railway Engineer.

His Excellency Dr. ARISTIDES DE AGUERO Y BETHANCOURT (appointed by the Government of Cuba). Envoy Extraordinary and Minister Plenipotentiary at Berlin.

M. Francisco AMUNATEGUI (appointed by the Government of Chile). Secretary-General of the Mixed Courts of Arbitration.

Mr. J. G. BALDWIN (appointed by the Government of the British Empire). Representative of Great Britain on the River Commissions.

M. Guillermo BROCKMANN (appointed by the Government of Spain). Inspector-General of Bridges and Roads.

Jonkheer Dr. W. J. M. VAN EYSINGA (appointed by the Government of the Netherlands). Professor at the University of Leyden, Member of the Central Commission for the navigation of the Rhine.

Dr. Robert HEROLD (appointed by the Government of Switzerland). Director of the Railways Section at the Federal Railways and Postal Department at Bern. Privatdozent at the University of Zurich.

M. P. A. HOLCK-COLDING (appointed by the Government of Denmark). Chef de Bureau at the Ministry of Public Works.

M. E. MONTARROYOS (appointed by the Government of Brazil). Engineer, formerly Staff Captain.

M. OKUYAMA (appointed by the Government of Japan). Councillor of Embassy at Paris.

His Excellency M. Charles Robert PUSTA (appointed by the Government of Esthonia). Minister Plenipotentiary at Paris and Rome.

M. Girolamo SINIGALIA (appointed by the Government of Italy). Chief-Inspector of the Italian State Railways. Member of the Central Commission for the navigation of the Rhine.

Dr. STIEVENARD (appointed by the Government of Belgium). Inspector of Belgian Railways.

M. Bohdan WINIARSKI (appointed by the Government of Poland). Professor of Law at the University of Posen.

EXPERTS TO THE COMMITTEE.

M. R. M. AVRAMOVITCH, Engineer, Under-Secretary of State at the Ministry of Communications at Belgrade (for railway questions).

Dr. O. LANKAS, Director at the Ministry of Railways at Prague (for railway questions).

M. G. POPESCO, Secretary-General at the Roumanian Ministry of Communications, Professor at the Polytechnical Institute of Bucarest (for water transport questions).

M. P. BIGNAMI, Engineer, former Under-Secretary of State (for hydro-electric questions).

M. J. HOSTIE, Secretary-General of the Central Commission for the navigation of the Rhine (for the equitable treatment of commerce.)

M. E. ISABELLE, Engineer, Technical Adviser to the Reparations Commission (for the drafting of the Convention on the International Regime of Railways).

M. A.-G. KRÖLLER, Member of the Economic Council at the Ministry of Foreign Affairs at The Hague (for the equitable treatment of commerce).

M. P. WOLF, Privy Councillor at the Ministry of Transport at Berlin (for the drafting of the Convention in the International Regime of Railways).

M. TSANG-OU, Director of the Chinese State Railways (for the drafting of the Convention on the International Regime of Railways).

Secretariat: Sir Arthur SALTER, Permanent Representative of the Secretary-General of the League of Nations; Director of the Communications and Transit Section. M. Robert HAAS, Secretary-General of the Advisory and Technical Committee; Member of the Communications and Transit Section of the League of Nations.

The Sub-Committees are composed as follows:

SUB-COMMITTEE FOR TRANSPORT BY RAIL.

Chairman: M. HÉROLD.

Vice-Chairman: M. BROCKMANN.

MM. AMUNATEGUI.
BALDWIN;
OKUYAMA;
SINIGALIA.

Experts: MM. AVRAMOVITCH;
ISABELLE (for the drafting of the Convention on the International Regime of Railways);
LANKAS;
TSANG-OU (for the drafting of the Convention on the International Regime of Railways);
WOLF (for the drafting of the Convention on the International Regime of Railways).

Secretary: Colonel HIAM, Member of the Communications and Transit Section of the League of Nations.

SUB-COMMITTEE FOR TRANSPORT BY WATER.

Chairman: M. MONTARROYOS.

Vice-Chairman: M. WINIARSKI.

MM. DE AGUERO Y BETHANCOURT (for maritime questions);
BALDWIN;
CHARGUERAUD;
VAN EYSINGA;
FERNANDEZ Y MEDINA;
STIEVENARD;
TCHEOU-WEI.

Expert: M. POPESCO.

Secretary: M. ROMEIN, Member of the Communications and Transit Section of the League of Nations.

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Sub-Committee for General Affairs.

Chairman: M. Sinigalia.

Vice-Chairman: M. Holck-Colding.

MM. de Aguero y Bethancourt;
Chargueraud;
Pusta;
Stievenard;
Tcheou-Wei.

Secretary : Colonel Hiam, Member of the Communications and Transit Section of the League of Nations.

SPECIAL SUB-COMMITTEES.

Sub-Committee for the Equitable Treatment of Commerce.

Chairman: M. Fernandez y Medina.

MM. Baldwin;
Chargueraud;
Montarroyos;
Okuyama;
Sinigalia;
Winiarski.

Experts: MM. Hostie;
Kröller.

Secretary : M. Haas.

Sub-Committee for Hydro-Electric Questions.

Chairman: M. Holck-Colding.

MM. Chargueraud;
Hérold;
Montarroyos.

Expert: M. Bignami.

Secretary : M. Romein.

Sub-Committee to consider the Question of Opium in Free Ports.

Chairman: M. de Aguero y Bethancourt.

MM. Chargueraud;
Holck-Colding;
Montarroyos;
Stievenard;
Tcheou-Wei.

Secretary : M. Romein.

Advisory and Technical Committee for Communications and Transit.

Minutes of the Third Session

HELD AT GENEVA FROM AUGUST 30th to SEPTEMBER 2nd, 1922.

The Advisory and Technical Committee for Communications and Transit of the League of Nations held its third session at Geneva from August 30th to September 2nd, 1922.

FIRST MEETING

Held on Wednesday, August 30th, 1922, at 11 a.m.

Present: All the members and experts of the Committee, with the exception of M. AVRAMOVITCH; Sir Arthur SALTER, representing the Secretary-General of the League of Nations.

The Secretaries-General of the International River Commissions of the Danube, the Elbe and the Oder had intimated that they were unable to attend; the Secretary-General of the Central Commission for the navigation of the Rhine was present as an expert.

Secretariat: M. HAAS, Secretary-General of the Committee, and M. ROMEIN.

OPENING ADDRESS.

The CHAIRMAN opened the meeting. He read a letter from the Secretary-General of the League of Nations informing the Committee that Professor Attolico, who had been called upon to undertake other duties, had been replaced by Sir Arthur Salter as Director of the Communications and Transit Section. He expressed his regret that the Committee would in future be deprived of the collaboration of Professor Attolico, whose great ability all the members had had the opportunity of appreciating; he thought that the Committee could be sincerely congratulated on having obtained the assistance of Sir Arthur Salter.

The Chairman extended a welcome on behalf of the Committee to M. Isabelle, M. Kröller, M. Popesco and M. Wolf. He informed the Committee that M. Avramovitch had also accepted his appointment as an expert on the Committee.

The Chairman referred to a confidential letter which he had sent to the Members of the Committee with regard to the Genoa Conference. In consequence of the resolution adopted by the Council with reference to a proposal made by the Italian Government, the Secretary-General had requested the Chairman of the Committee for Communications and Transit to hold himself in readiness to appear before the Genoa Conference if his presence should be desired, in order that he might give his assistance to the Commissions of the Conference. In reply to the Secretary-General's request, the Chairman felt it his duty to point out that, although he was convinced of the willingness of the members to co-operate in the work of Genoa, he did not feel authorised to accede to the request of a Conference which was not held under the auspices of the League of Nations, unless such request were transmitted through the intermediary of the President of the Council. He had thought it advisable to inform the Members of the Committee of the correspondence which had been exchanged, and the replies which he had received had shown him that the Members of the Committee approved of his point of view in the matter.

The Committee then passed to the consideration of the various questions on the agenda (See Annex 1).

ELECTION OF THE BUREAU OF THE COMMITTEE (item No. 1 on the agenda).

The CHAIRMAN reminded the Committee of the principle of rotation of officers with regard to the chairmanship and the Bureau. After an exchange of views, the Committee decided to postpone the election of the new Bureau until the last plenary meeting of the present session.

The Committee passed to the consideration of question No. 2 on the agenda: *The Secretary General's report on the measures adopted in pursuance of the decisions taken at the last session.*

The SECRETARY-GENERAL read this report (See Annex 2). He informed the Committee that up to the present the Barcelona Conventions had been ratified by six States, which had already deposited their ratifications, and that, in addition, M. Winiarski had just informed him of Poland's ratification.

As regards the resolutions of the Committee concerning water transport, the information contained in the report should be completed by the announcement that the International Danube Commission had considered at its last session, draft regulations respecting tonnage measurement drawn up by the Secretariat, and had decided that the draft would be considered by the delegates, and that the question would be dealt with at the first session in 1923. (See Annex 2a.)

With regard to the unification of private law in inland navigation, the Secretary-General of the International Danube Commission had announced that the proposal made by one of the delegates with regard to this matter had been withdrawn as a result of the discussions which had taken place.

The Committee approved the Secretary-General's report.

The Committee proceeded to consider question No. 6 on the agenda, viz. *Alterations made in the Draft Budget.* The Secretary-General read a note dealing with this matter (See Annex 3). He then gave explanations with regard to the reductions proposed by the Commission of Control and presented detailed figures relating to the expenditure effected in the first six months of 1922. He further submitted a Draft Budget for the General Conference to be held next year. The Committee adopted the Budget totals proposed by the Commission of Control, subject to reservations as regards the expenditure which might be occasioned by putting into force the resolutions of the Genoa Conference. (See Annex 3a.)

The Committee proceeded to consider item No. 7 of the agenda, *i. e., Petition of the Saar Basin Governing Commission regarding the railways of the Saar and the International Convention on the Transport of Goods by Rail* (Bern Convention of October 14th, 1890).

The CHAIRMAN observed that this question had already been before the Committee, though from a different point of view. The Council had asked the Committee to give its legal opinion on the matter. In view of the fact that that opinion had not been accepted by the German Government, the Saar Basin Governing Commission appealed to the Committee to apply the procedure of conciliation. The CHAIRMAN further pointed out that, in view of the possibility of a request for conciliation, the Committee had expressly reserved its freedom of action when it gave its legal opinion.

The SECRETARY-GENERAL read the relevant documents (See Annexes 4 and 4a).

M. CHARGUERAUD called attention to the fact that conciliation had only been demanded by one of the parties. They should, therefore, inform the other party of the request that had been made, and find out whether they were willing to accept the conciliation procedure.

The CHAIRMAN proposed that to the Sub-Committee which dealt with the question last year, M. Chargueraud and M. Montarroyos should be added, and that this Sub-Committee should consider what procedure it was desirable to adopt.

This proposal was adopted.

The meeting rose at 1 p.m.

SECOND MEETING

Held on Wednesday, August 30th, 1922, at 4 p.m.

Present: All the members and experts of the Committee, and Sir Arthur SALTER, representing the Secretary-General of the League of Nations.

Secretariat: M. HAAS, Secretary-General of the Committee, and M. ROMEIN.

The Committee proceeded to consider item No. 3 on the agenda: *Consideration of the Genoa Conference resolutions, communicated to the Committee in accordance with a resolution adopted by the Council.*

The CHAIRMAN pointed out that the Genoa Conference was a purely European conference. In view of the fact that the Committee's work was of a more comprehensive nature, it should consider, when studying the various resolutions adopted at the Genoa Conference, to what extent a wider application might be given to these resolutions.

The SECRETARY-GENERAL read an explanatory memorandum concerning the resolutions adopted at the Genoa Conference (see Annex 5).

The CHAIRMAN called attention to the financial consequences entailed by the duties devolving upon the Committee as a result of the Genoa resolution.

The SECRETARY-GENERAL explained that the supplementary estimates did not involve any increase in the permanent staff, as they made provision only for the special enquiries and the conferences of experts referred to in Article 8 of the Genoa resolution.

M. STIEVENARD enquired who would bear the expense of any conference which it might be considered necessary to convene with a view to discovering some way to remedy the unsatisfactory condition of the transport system of certain countries.

The SECRETARY-GENERAL replied that the cost of the experts' preliminary investigations would be borne by the League of Nations, but that the expenses of the delegates to the Conference would be defrayed by their respective Governments.

The Committee approved the Secretariat's note concerning the methods to be adopted for carrying out the resolutions of the Genoa Conference (see Annex 5a). It also approved of the draft supplementary estimates of 100,000 gold francs (see Annex 3b).

The meeting closed at 5 p.m.

THIRD MEETING

Held on Thursday, August 31st, 1922, at 6 p.m.

Present: All the members and experts of the Committee, and Sir Arthur SALTER, representing the Secretary-General of the League of Nations.

Secretariat: Mr. HAAS, Secretary-General of the Committee, and M. ROMEIN.

There were also present at the meeting:

Sir Malcolm DELEVINGNE, Chairman of the Advisory Committee on Traffic in Opium, and Dame Rachel CROWDY, Secretary of the Advisory Committee on Traffic in Opium.

The Committee proceeded to consider item 4 of the agenda: *Control of the opium traffic in free ports.*

The SECRETARY-GENERAL read the letters received relating to this question (see Annex 6 and 6a).

Sir Malcolm DELEVINGNE gave a brief account of the situation in regard to the handling of opium. The Signatory Powers of the International Opium Convention had undertaken to exercise a system of control over the traffic in this drug. This control was to be carried out by means of a system of permits. Great Britain, for instance, allowed the exportation of opium and other drugs only where it could be proved that they were being exported for legitimate purposes. But when opium was despatched to a consignee in a free port, such as Copenhagen, for instance, the drug escaped Government control on the part of the State within whose territory the free port was situated, and might be re-exported from the free port to some other destination without the permit system coming into operation. The Opium Committee had applied to the Committee for Communications and Transit with a view to ascertaining what practical measures might be considered for the purpose of remedying this situation.

M. HOLCK-COLDING pointed out that Customs control in a free port was contrary to the very principle of a free port. It was true that, during the war, it had been deemed necessary to exercise, in the free port of Copenhagen, control over certain goods, such as arms and explosives, but such control was abolished as soon as circumstances rendered it possible. It would, therefore, be a difficult matter to reintroduce a system of control in regard to opium, more especially as such a course would constitute a hindrance to the freedom of communications and transit, the protection of which was the very object of the Committee.

The CHAIRMAN referred to the text of the Opium Convention. He considered that all the engagements contained therein applied to all ports, whether free or otherwise.

Sir Malcolm DELEVINGNE considered this to be the true interpretation of the terms of the Convention.

M. FERNANDEZ Y MEDINA enquired whether there are any countries which have not ratified the Opium Convention.

Sir Malcolm DELEVINGNE stated in reply that, unfortunately, a few countries had failed to do so, but that a very large number of States had notified their adherence to the Convention.

M. HOLCK-COLDING thought it desirable to consider once more the instance put forward by Sir Malcolm Delevingne. He himself was not of opinion that a consignment of opium sent from England which, on arrival at Copenhagen, was forwarded to another destination, could be considered as having been imported into and re-exported from Denmark.

Sir Malcolm DELEVINGNE stated in reply that, when the ultimate destination was known, no difficulty would arise, but when this was not the case, there was the danger of illicit traffic escaping supervision.

M. TCHEOU-WEI agreed in principle with the views expressed by Sir Malcolm Delevingne, but he desired to point out that abuses and smuggling of opium and its derivatives, morphine cocaine and heroin, etc., existed not only in free ports but also and to a much greater extent in the concessions and territories leased in China.

In fact, in these concessions and leased territories no Chinese authority existed, and it was almost impossible for the Chinese Customs to intervene. Foreign and Chinese smugglers had evaded Chinese official control and traded as they pleased secretly from port to port and from town to town, being largely assisted in doing so by the existence of foreign posts in China, which were likewise not under Chinese authority. It was therefore obvious that the efforts of the Chinese Government to suppress the traffic in opium and its derivatives were considerably impeded by the existence of these zones and ports, which caused far greater trouble than the free ports properly so-called. The Chinese Government was bound by treaties, and it was therefore almost impossible for it to take any steps to remedy this abnormal situation.

M. Tcheou-Wei said that he would later bring forward a concrete proposal on this subject.

The SECRETARY-GENERAL said that, apart from the question whether the Opium Convention did or did not apply to the free ports, it was obvious that all Governments were prepared to do all in their power to suppress the traffic in opium. They would have to consider what measures could be taken in free ports. He did not hold the view that control over the opium traffic was in the nature of Customs supervision, but rather of police regulation. The various Governments possessed sources of information and were in a position to inflict heavy penalties in cases of illicit traffic.

The CHAIRMAN noted that the Committee agreed as to the principle that any State within whose territory a free port was situated was as much entitled to carry out general police measures within the precincts of the free port as within other parts of its territory.

The Secretariat was instructed to draw up a draft resolution to be submitted to the Committee at its next meeting.

The meeting adjourned at 7.10 p.m.

FOURTH MEETING

Held on Friday, September 1st, 1922, at 10.15 a.m.

Present : All the members and experts of the Committee.

Secretariat: M. HAAS, Secretary-General of the Committee, and M. ROMEIN.

REPORT OF THE SUB-COMMITTEE FOR HYDRO-ELECTRIC QUESTIONS.

M. HOLCK-COLDING read the report of the Sub-Committee on Hydro-Electric Questions.

M. BIGNAMI reminded the Committee of the discussions which had taken place at the Barcelona Conference and of the recommendation adopted by that Conference. In view of the great importance of the question from the point of view of international solidarity, he considered that it was desirable to achieve a positive result. He further thought that the League of Nations was the right body to deal with the problem.

M. MONTARROYOS wished to explain more fully the procedure that should be followed. The information to be collected should include not only the conventions and agreements but all precedents connected with the matter. With that amendment, the report of the Sub-Committee was adopted (see Annex 7).

The Committee then resumed discussion of the question of the *Traffic in opium in free ports.*

The SECRETARY-GENERAL read a text which had been drawn up by M. Stievenard and the Secretariat.

M. MONTARROYOS emphasised the importance of safeguarding the regime of free ports. All control should be carried out in conformity with that system. It seemed to him that the text which had been proposed might have disadvantages from that point of view.

M. AVRAMOVITCH expressed his agreement with M. Montarroyos.

M. TCHEOU-WEI recalled the fact that the Opium Committee had drawn attention in very energetic terms to the absolute necessity of adopting urgent measures to combat the traffic.

M. CHARGUERAUD remarked that a State which set up a free port did not in any way renounce its rights of sovereignty. The regime of the free ports was purely a Customs regime.

The CHAIRMAN proposed that a Sub-Committee consisting of M. Charguéraud, M. Holck-Colding, M. Montarroyos, M. Stievenard and the Secretary-General should endeavour to arrive at an agreement on this question.

The proposal was adopted.

The SECRETARY-GENERAL read a letter from the Secretary-General of the Health Committee (see Annex 8) inviting the Committee for Communications and Transit to appoint three members to co-operate with a Sub-Committee of the Health Committee in examining the sanitary measures which should be adopted along the routes of navigable waterways.

The CHAIRMAN proposed to appoint M. Baldwin, Popesco and M. Stievenard.

After an exchange of views, these members accepted the mission entrusted to them.

The Committee resumed consideration of item No. 7 on the agenda: *Petition of the Governing Commission of the Saar Basin with regard to the railways of the Saar and to the International Convention on the Transport of Goods by Rail* (Bern Convention of October 14th, 1890).

The SECRETARY-GENERAL read a draft resolution proposed by the Sub-Committee.

The CHAIRMAN proposed that M. Hérold should be appointed as a member of the proposed Commission of Enquiry. The Commission would, further, include two members to be nominated

by the parties to the dispute and two members selected from a list of experts nominated by the various Governments. He proposed that M. RUDD (Norway) and Mr. MARRIOTT (Great Britain) should be appointed.

This was decided, and the draft resolution was adopted (see Annex 4bb).

The Committee passed to the consideration of item No. 5 on the agenda: *The question of the interpretation of the Convention on the Regime of Navigable Waterways of International Concern.*

The SECRETARY-GENERAL read a letter addressed to the Committee by M. Baldwin on that subject (see Annex 9).

Mr. BALDWIN gave further explanations. He said that the British Government was somewhat anxious as a result of the delay which had taken place in the ratification of this Convention. He thought that the Committee could probably give explanations which would solve the difficulties now preventing certain Governments from signing or ratifying the Convention.

M. POPESCO referred to the difficulties which had arisen in consequence of the interpretation given to the Statute of the Danube by the International Danube Commission. He wondered whether the Committee for Communications and Transit was competent to make a pronouncement with regard to the interpretation of the Barcelona Convention on the Regime of Navigable Waterways of International Concern.

The SECRETARY-GENERAL drew attention to the decision which had been taken at the last session inviting the Signatory States to hasten as much as possible the procedure of ratification, and inviting the non-Signatory States to announce their intentions with regard to adherence to the Convention. The Committee had then agreed in thinking that if a State declared that it did not intend to adhere to the Convention, it should state the reasons which prevented it from so doing. It was right that it was not the Committee's duty to impose a particular interpretation of the texts of the Convention, but it might with advantage examine the difficulties which resulted from the uncertainty as to their interpretation.

M. AVRAMOVITCH thought that the Advisory and Technical Committee for Communications and Transit was not competent to give an interpretation of the Convention. For this reason he would prefer that the words " avoid misunderstanding " should be used instead of "interpretation. " Furthermore, any action taken by the Committee on this matter should be unofficial. It was undesirable that arguments should be drawn from a solution given in a particular case in respect of other cases or other rivers which might affect the rights of other States signatories of the Convention.

M. HEROLD said that the various Governments had been requested to reply before December 1st. As the Swiss Government had not yet come to a decision in the matter, he was still unable to state his Government's point of view.

M. WINIARSKI thought that the Committee ought not to bind itself, for it might happen that the interpretation to be given to the Convention by the Permanent Court of International Justice would not coincide with the interpretation arrived at by the Committee.

The SECRETARY-GENERAL considered that the Committee always had the right to say that, in its opinion, a particular article had a particular meaning.

The CHAIRMAN laid stress upon the general character of the Convention. Many countries were not represented on that Committee, and consequently any interpretation which it might give would perhaps not be of very much practical use with a view to obtaining general acceptance of the Convention. If it was desired to alter the Convention or give an official interpretation, a new general conference would be necessary.

Mr. BALDWIN thought that a discussion in Committee would nevertheless be of service. If each member informed the Committee of the interpretation given by his Government to any particular article, they might perhaps succeed in dispelling anxiety felt with regard to certain points.

M. MONTARROYOS was of the same opinion as Mr. Baldwin.

The further discussion of this question was postponed to a subsequent meeting.

The meeting rose at 1 p.m.

FIFTH MEETING

Held on Friday, September 1st, 1922, at 3.15 p.m.

Present: All the members and experts of the Committee.

Secretariat: M. HAAS, Secretary-General of the Committee, and M. ROMEIN.

The Committee considered item No 11 on the agenda: *Reform of the Calendar* (see Annex 10).

The SECRETARY-GENERAL explained certain points in connection with this subject. As the Swiss Government had dealt with this question at an earlier date it had been asked whether it saw any objection to this matter being handled by the Committee. An official reply had not yet been received, but the Secretary-General was in a position to assure the Committee that, from semi-official information which had been obtained, the Swiss Government apparently saw no reason why the Committee should not take up the question of the reform of the calendar. Before proceeding further with the investigation of this question, it also appeared necessary to ascertain the views of the religious authorities in connection with this matter. In accordance with the information so far received, it might be inferred that these authorities would, perhaps, not refuse to co-operate in the investigation which had been undertaken. It therefore seemed desirable to postpone consideration of the question for the time being.

After a discussion, the Committee adopted this suggestion.

The meeting rose at 3.50 p.m.

SIXTH MEETING.

Held on Saturday, September 2nd, 1922, at 10.20 a.m.

Present: All the members and experts of the Committee.

Secretariat: M. HAAS, Secretary-General of the Committee, and M. ROMEIN.

The Committee considered the *resolutions adopted by the Sub-Committee for the Equitable Treatment of Commerce.*

The SECRETARY-GENERAL read the resolution concerning Customs formalities (see Annexes 11b and 11bb).

This resolution was adopted.

The SECRETARY-GENERAL read the resolution concerning the regime of ports (see Annexes 11a and 11aa).

This resolution was adopted.

The SECRETARY-GENERAL read the resolution concerning discrimination between tariffs. (see Annexes 11c and 11cc).

This resolution was adopted.

The Committee passed to the discussion of the *report submitted by the Sub-Committee on Railway Transport.*

The SECRETARY-GENERAL read a resolution adopted by this Sub-Committee (see Annex 12a).

After some discussion, it was decided to adopt M. Avramovitch's proposal to insert in the last paragraph, after the word 'text," the words "of the general convention," to make it quite clear that both the principal convention and the annexed conventions form part of the general convention.

The resolution of the Sub-Committee on Railway Transport was adopted in the amended form (see Annex 12aa).

The CHAIRMAN proposed to nominate M. Tsang-Ou, who had already given his co-operation at the meeting of the Chairman and the experts of the Sub-Committee, as expert for the drafting of the general convention.

This was agreed to (see Annex 12b).

The SECRETARY-GENERAL drew attention to the fact that the adoption of the text of the memorandum drawn up at the Paris meeting made it possible for the Council to convene a meeting of experts at the suggestion of the Sub-Committee on Railway Transport.

The Committee resumed the discussion of the question of the *traffic in opium in free ports.*

The SECRETARY-GENERAL read a draft resolution prepared by the Sub-Committee.

This draft resolution was adopted (see Annexes 6b and 6bb).

On the proposal of the Chairman, it was resolved that M. DE AGUERO Y BETHANCOURT, M. CHARGUERAUD, M. HOLCK-COLDING, M. MONTARROYOS, M. STIEVENARD and M. TCHEOU-WEI should be members of the Sub-Committee which was to be formed.

The Committee resumed the discussion of the *signatures and ratifications of the Convention on the Regime of Navigable Waterways of International Concern.*

The SECRETARY-GENERAL read a draft resolution dealing with the matter.

M. AVRAMOVITCH enquired whether it was clearly understood that it was only a question of clearing up misunderstandings and that nothing in the present resolution affected the rights of other States which might be parties to the Convention.

M. LANKAS, in order to meet M. Avramovitch's suggestion, proposed to add in the last paragraph, after the words "in no case," the words "and in no wise."

M. BALDWIN remarked that it was to be regretted that the Barcelona Convention on the Regime of Navigable Waterways of International Concern had not been ratified by a larger number of States. He was, therefore, greatly in favour of the adoption of the present resolution, as he saw in it the possibility of obtaining a larger number of ratifications or adhesions.

After discussion, the draft resolution, with the amendment proposed by M. Lankas, was adopted (see Annex 9aa).

STATEMENT BY M. WINIARSKI CONCERNING THE NIEMEN.

M. WINIARSKI was anxious to make a statement concerning the situation on the Niemen. He recalled the fact that at Barcelona the Lithuanian Delegation had stated that it could not recognise the internationalisation of the Niemen by virtue of the Treaty of Versailles since Lithuania was not a party to this Treaty, but that the Lithuanian Government was nevertheless prepared to accept the principle laid down in the Convention on the Regime of Navigable Waterways of International Concern, and to apply this Convention to the Niemen. Since then Lithuania had renewed her declaration to this effect. Nevertheless, Lithuania debarred Poland from access to the sea by this river, and as a result of this, international commerce and transport had been seriously affected; for instance, the timber trade, which was the most important industry in that district, was reduced to a quarter or a fifth of its pre-war volume. The same remarks apply to all other products, more especially to agricultural products.

The question had been laid before the Conference of Ambassadors, and M. Winiarski therefore confined himself for the present to bringing the matter to the knowledge of the members of the Committee, but he proposed to request that it be placed on the agenda of the next session .

The Committee noted M. Winiarski's statement.

COLLECTION OF TEXTS OF REGULATIONS.

On the proposal of M. CHARGUERAUD, it was decided that the Secretariat should publish a collection of the texts concerning the statutes of the Organisation for Communications and Transit (see Annex 13).

The Committee proceeded to *elect its Chairman and Vice-Chairmen.* M. FERNANDEZ Y MEDINA was unanimously elected Chairman; M. CHARGUERAUD and M. TCHEOU-WEI were unanimously elected Vice-Chairmen.

The Chairman was asked to draw up the second report of the Committee to the Assembly, containing a statement of the work done up to the present session, the first report having been drawn up by the acting Chairman in conformity with the precedent established last year. It was agreed that the Chairman and the members of the Committee then present should place themselves at the disposal of the Assembly.

M. DE AGUERO Y BETHANCOURT, speaking on behalf of the members of the Committee, desired to thank M. van Eysinga for his exceedingly able chairmanship.

The CHAIRMAN, thanking the members of the Committee, insisted that it was due to the good- will and co-operation manifested by all the members that he had been able successfully to direct the work of the Committee. He thanked the members of the Secretariat for their excellent work.

The meeting rose at 12.30 p.m.

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Note. — The small letter a, b, or c denotes the resolution as adopted by the Sub-Committee; the double letters aa, bb, or cc denote the resolution as adopted by the full Committee. In some instances it will be noted that both forms of lettering appear above the same text; this signifies that the Sub-Committee's resolution and the resolution as adopted by the full Committee were similar.

ANNEX I.

AGENDA.

A. *Full Committee.*

1. Election of the Bureau of the Committee.
2. Report by the Secretary-General on the steps taken to give effect to the decisions of the last session.
3. Consideration of the Resolutions of the Genoa Conference which have been transmitted to the Committee.
4. Control of the opium traffic in free ports. Question submitted by the Opium Committee.
5. Question regarding the interpretation of the Convention on the Regime of Navigable Waterways of International Concern. Question submitted by Mr. Baldwin.
6. Changes in the draft budget. Note by the Secretary-General.
7. Communication by the Secretary-General of the League of a request from the Governing Commission of the Saar Basin regarding the railways of the Saar and the Berne International Convention on Goods Traffic of October 14th, 1890.

B. *Sub-Committee for the Equitable Treatment of Commerce.*

8. Consideration of the questions raised by the Sub-Committee of the Economic Committee.
9. Consideration of the Resolutions of the Genoa Conference regarding the question of equitable treatment of commerce.

C. *Sub-Committee for Transport by Rail.*

10. Preparation of the General Convention on Railways. Consideration of the preliminary work of the Chairman and the experts, following on the replies received from the various Governments.

D. *Sub-Committee for General Affairs.*

11. Reform of the calendar.

E. *Sub-Committee for Hydro-Electric Questions.*

12. Consideration of a preliminary draft Convention on the transmission of hydro-electric power and on the hydro-electric utilisation of navigable waterways which separate or traverse several countries.

ANNEX 2.

Report on the Steps taken to carry out the Resolutions of the Last Session.

It appears desirable to outline the steps taken to carry out the decisions of the last session of the Committee not already referred to in other notes.

(a) Barcelona Conventions.

A communication was sent to all the Governments informing them of the Committee's resolution. This letter also refers to the article in the Rules of Organisation which provides that the Secretary-General, one year after the close of a General Conference, shall enquire what steps have been taken to give effect to its decisions. It also alludes to the resolutions of the Genoa Conference with regard to the Barcelona Conventions, which that Conference transmitted to the League of Nations. For the various reasons mentioned above, the despatch of this letter was delayed; a reply by December 1st has been asked for.

(b) General Transport Questions.

The resolution referring to passports and customs formalities has been communicated to all the Governments and also to the Time-table Conference. Attention may also be drawn to the fact that the Genoa Conference, in its economic resolutions, entirely approved the resolutions adopted by the Paris Conference, noted the replies to the enquiry undertaken by the League

of Nations, and asked that these measures should be applied without delay. Moreover, the text of the Convention concluded at Gratz between the various Succession States of the Austro-Hungarian Monarchy on the basis of these resolutions has been registered with the League.

(c) Transport by Rail.

The resolution respecting summer-time has been communicated to all the European Governments. The Italian Government has stated that it did not intend to introduce summer-time; the resolution will be communicated to the Economic Committee at its next session.

As regards the question of sleeping-cars in Central Europe, it became clear at the beginning of the enquiry that a certain number of kindred questions are at present being submitted to the consideration of an International Arbitration Tribunal, whose decision will shortly be given, particularly in regard to the question of the validity of contracts concluded before the war between the International Sleeping-Car Company and certain German States.

Under these circumstances it seemed preferable, before proceeding with the investigation of the problem, that these kindred, concrete and essential questions should first of all be settled.

(d) Water Transport.

As regards tonnage measurement in maritime navigation, a new report of the International Chamber of Commerce is expected. The Secretariat has been informed that various organisations concerned will be discussing this question in the autumn; under these circumstances, it has not seemed desirable for the time being to take any further steps in the investigation of this question in the sense of the Committee's resolution.

The Committee's resolution on tonnage measurement in inland navigation has been forwarded to the various Governments and also to the River Commissions. The Central Commission for the navigation of the Rhine has decided to go into the question at its next session. The International Danube Commission has not yet considered the question.

The unification of private law has not again been thoroughly discussed by any of the River Commissions. The correspondence with the River Commissions will be communicated to the Committee.

On the questions raised by the Advisory and Technical Committee for Communications and Transit, the International Danube Commission reconsidered the general situation of this Commission in its relations with the advisory organisations of the League of Nations and adopted the following resolution:

> "The International Danube Commission being of opinion that, without prejudice to the principle of its complete independence in exercising the mandate conferred upon it by the Danube Agreement, it would be to its interest to establish permanent contact between itself and the Advisory and Technical Committee for Communications and Transit set up by the League of Nations, and, while confirming the fact that the respective positions of the International Danube Commission and the Advisory and Technical Committee are, and remain, exclusively those fixed by the clauses concerned with their formation,
>
> Decides:
>
> " That the Secretary-General of the International Danube Commission or his representative can be present at the meetings of the Advisory Committee if invited to attend; he is to report the results of these meetings to the International Commission.
>
> " The Secretariat of the Commission will exchange with the Secretariat of the Advisory Committee, by way of information, all documents, Protocols and information which may be of interest to one or other of the two organisations.
>
> " The representatives of the International Danube Commission or of the Advisory and Technical Committee shall be empowered to furnish verbally any information which may be required of them during the meetings. "

This resolution seems to conform entirely with the intentions of the Advisory and Technical Committee, and with the practice which has always been followed.

(e) Air Transport.

The International Convention on Air Navigation, which was mentioned at the last session, has come into force. The International Commission for Air Navigation, provided for in the Convention, has held its first session; the Secretariat has communicated to it the views expressed by the Committee at its last meeting, both as regards its connection with the Committee and as regards the possibility of co-operation in the different fields of work suggested. The reply of the International Commission for Air Navigation has not yet been received, as it is still in session.

(f) Motor Transport.

Requests for supplementary information on the question of an international driver's certificate, which was considered by the Committee, have been addressed both to the International Labour Office and the Automobile Club Federation. The International Labour Office has just forwarded to us documents and information on the subject, a summary of which will be sent to the Sub-Committee concerned.

ANNEX 2 a.

Extract from the Resolutions adopted by the International Danube Commission at its Sixth Plenary Session (June 1922).

Chapter 4.

Tonnage Regulations.

1. The Commission notes that it is desirable that all vessels navigating the internationalised Danube system should be furnished with official tonnage certificates drawn up in conformity with a uniform system of tonnage measurement.

2. The draft tonnage regulations presented by the Secretariat having been submitted to the delegates for consideration, the latter are requested to forward their comments or counter-proposals to the Commission in due course. These comments or counter-proposals, co-ordinated by the Secretariat, will be considered by a Sub-Committee which will meet at Bratislava a fortnight before the opening of the first ordinary session of 1923, for the purpose of formulating definite proposals to be submitted for the approval of the Commission in the course of that session.

ANNEX 3.

Note concerning the Modifications made by the Commission of Control in the Draft Budget adopted by the Advisory and Technical Committee.

The following passage from the first report of the Commission of Control is communicated to the Committee:

"With regard to the estimates of the Transit Organisation (Schedule M), the Commission raised no objection to the credit of 300,000 francs asked for in respect of a General Conference provided that the Secretariat furnished the Fourth Committee with detailed estimates as to the use of this credit. This Conference will be held at Geneva. Moreover, the Commission of Control wishes once again to draw attention to the reasons set forth by the Committee of Enquiry, approved by the Fourth Committee and sanctioned by the Assembly in 1921, in favour of the holding at Geneva of *all* gatherings of this nature except in quite exceptional cases and for reasons of imperative necessity.

"The credit of 135,000 francs estimated for the sessions of the Advisory and Technical Committee was reduced to 110,000 francs.

"The item 'Publications and transmission of information to Governments, etc.' was reduced from 40,000 to 50,000.

"Item No. 9 (Cablegrams, etc.) was reduced from 25,000 to 20,000.

"Item No. 10 (Miscellaneous expenses, etc.) underwent a similar reduction.

"The Commission noted the statement of the head of the Transit Section regarding the necessity of a demand for further credits in the event of the League of Nations deciding to undertake the duty of giving effect to the decisions of the Genoa Conference with respect to transit."

The Secretariat will submit to the Commission a detailed statement concerning the employment of the credit of 300,000 francs asked for the General Conference, which statement, according to the report quoted above, must be submitted to the Fourth Committee of the Assembly.

As regards the reductions effected by the Commission of Control, those referring to the Item "Publications and transmission of information to Governments, etc.", to Item 9 and Item 10, are an extension to the Transit Organisation of the general reductions in similar items under other headings of the Budget.

The reduction proposed by the Commission of Control with reference to the actual sessions of the Advisory and Technical Committee is submitted to the Committee for consideration.

The Committee is also asked to consider the financial consequences of the duties contemplated by the Genoa Conference.

ANNEX 3 a.

Decision of the Committee with regard to the Budget.

The Committee decided to adopt the Budget estimates proposed by the Commission of Control, with a reservation concerning the expenditure which might be occasioned by the execution of the resolution passed by the Genoa Conference.

ANNEX 3 b.

Supplementary Draft Budget to cover the Expenses involved by the Work outlined in the Resolution of the Genoa Conference as forwarded by the Council.

Special correspondents and enquiries	50,000 fr.
Conference of Experts, as provided in Article 8 of the Genoa Resolution	50,000 "
	100,000 "

ANNEX 4.

Letter from the Director of the Administrative Commissions Section of the Secretariat to the President of the Advisory and Technical Committee.

GENEVA, *July 29th*, 1922.

Sir,

I have the honour to transmit herewith to the Advisory and Technical Committee for Communications and Transit, copy of a letter dated June 24th, 1922, of another letter dated July 8th, 1922, with two annexes, and also of a letter dated July 24th, 1922, from the President of the Governing Commission of the Territory of the Saar Basin. These letters refer to the difficulties which have arisen between the German Government and the Governing Commission in connection with the International Convention on goods transport concluded at Berne on October 14th, 1890. In his letter dated June 24th, M. Rault requested the League of Nations, in virtue of paragraph 22 of the Annex to Section IV of Part III of the Treaty of Peace of Versailles and of Article 376 of that Treaty, to put into effect the procedure with regard to conciliation and the settlement of disputes laid down for the carrying out of this article in the resolution of the Assembly of the League of Nations dated December 9th, 1920.

I have communicated to the Council of the League of Nations a copy of all the abovementioned letters from the President of the Governing Commission of the Saar Basin (with their annexes) and also a copy of the present letter.

With reference to my letter to you dated September 7th, 1921, in which I forwarded to you certain documents relating to this matter, I venture to send you, in addition, the following documents:

1. The report adopted by the Council on October 2nd, 1921, together with an extract from the minutes of the meeting at which this report was adopted;
2. A copy of the letter dated October 31st, 1921, with two annexes, from the President of the Governing Commission of the Saar Basin.

I have the honour to be, etc., For the Secretary-General:

(Signed) ERIK COLBAN,
Director of the Administrative Commissions Section

ANNEX 4 a.

Letter from the President of the Governing Commission of the Saar Territory to the Secretary-General of the League of Nations.

GOVERNING COMMISSION
OF THE
SAAR TERRITORY

THE PRESIDENT.

SAARBRUCK, *July 24th*, 1922.

[*Translation.*]

Sir,

On June 24th last I had the honour to bring to the notice of the Council of the League of Nations the dispute which had arisen between the Governing Commission and the German Government concerning the International Convention on Goods Transport concluded at Berne on October 14th, 1890.

On July 8th I forwarded to you a letter from the German Government dated June 21st, which reached Saarbruck after the despatch of my letter of June 24th mentioned above; in this letter the German Government replied to my letter dated October 30th, 1921 — repeated on March 11th and March 23rd following — in which I communicated to the German Government the opinion expressed on September 26th, 1921, by the Advisory and Technical Committee. With this letter the German Government enclosed a legal opinion.

After having considered the German Note, dated June 21st, 1921, and its annex, the Governing Commission renews and confirms the action which it took on June 24th with the League of Nations. In view of the German Government's reply, the Commission cannot hope that any useful purpose would be served by direct negotiations, as the conclusion arrived at in the legal opinion, on which the reply is based, is that the Governing Commission's proposals cannot be accepted.

The Governing Commission has therefore the honour to request the Council of the League of Nations, in virtue of paragraph 22 of the Annex to Section IV of Part III of the Treaty of Peace and of Article 376 of that Treaty, to put into effect the procedure for conciliation and the settlement of disputes laid down by the resolution of the Assembly of the League of Nations dated December 9th, 1920.

The Governing Commission considers that there is no need to establish a legal defence of the opinion expressed by the Advisory and Technical Commission for Communications and Transit, with which the Governing Commission concurs.

It would merely offer the two following comments:

1. As regards the Signatory Powers of the Treaty of Peace, the opinion of the League of Nations is based on the provisions of paragraph 22 of the Annex to Section IV of Part III of the Treaty of Peace, in conjunction with the provisions of Article 365. The German reply takes no account of these texts, which form, however, the very basis of our argument.

2. As regards those Powers signatories of the Berne Convention but not signatories of the Treaty of Peace, the opinion of the League of Nations is based on the fact that the provisions in question are conditional upon a territorial change, and therefore, according to international law, concern third parties. In the German reply it is maintained that as regards the Saar there can be no question of any " territorial " change, as the status of the Saar will not be finally determined until the plebiscite has been taken. The true value of this argument may be judged when it is remembered that Article 48 of the Treaty of Versailles, for example, speaks of the " Territory of the Saar Basin " and defines its frontiers.

Whether this Territory ceases to exist or not after the plebiscite has been taken does not alter the fact that it exists to-day, and that a territorial change has therefore taken place, which may or may not be followed, after the plebiscite, by a further change.

The Governing Commission reserves, moreover, the right to furnish the Advisory and Technical Committee with any information bearing upon questions of fact which it may consider necessary to bring to its notice.

The Commission would recall that in its view it would be equitable and in accordance with the provisions of the Treaty of Versailles if the following points were agreed upon:

1. The Territory of the Saar Basin, whether considered as a State or not, is party, as an independent entity, to the Berne Convention of October 14th, 1890.

2. In particular, railway transport between the Territory of the Saar Basin and Germany is subject to the international transport regime laid down by the Berne Convention.

3. The Governing Commission of the Saar Basin is alone competent to represent the Saar railways.

4. The lines operated by the Governing Commission of the Saar Basin should be placed under a separate heading in the list of railways to which the Berne Convention applies. This decision should be notified to the " Office central des Transports internationaux par Chemins de Fer. "

I have the honour to be, etc.,

(Signed) V. RAULT.

ANNEX 4 bb.

Resolution concerning the Saar Railways.

The Committee,

Having taken note of the request of the Governing Commission of the Saar Territory transmitted by the Secretary-General of the League of Nations;

Considering

That, by virtue of Article 22 of the Annex to Section IV of Part III of the Treaty of Versailles, persons, goods, vessels, carriages, wagons and mails coming from or going to the Saar Basin enjoy all the rights and privileges relating to transit and to transport which are specified in Part XII (Ports, waterways and railways) of the said Treaty;

That the Governing Commission of the Saar Territory claims as one of these privileges, by virtue of Article 366, Part XII of the said Treaty, the benefits of the International Convention of Berne in respect of transport to and from Germany of goods leaving or entering the territory placed under its jurisdiction;

That the correspondence communicated by the Governing Commission of the Saar Basin shows that the German Government does not accept this interpretation or its consequences;

That the exercise of the rights granted to persons, goods, vessels, carriages, wagons, etc., by Part XII of the Treaty of Versailles is guaranteed, in case of disputes respecting the interpretation or application, by the stipulations of Article 376, which also forms part of Part XII of the Treaty of Versailles and according to which such disputes are to be settled, as provided by the League of Nations;

That the Assembly of the League of Nations, by a resolution of December 9th, 1920, stipulated that the Advisory and Technical Committee for Communications and Transit should be entrusted with the investigation of any disputes which might be referred to the League under Articles 336, 376 and 386 of the Treaty of Versailles, and should endeavour to adjust such disputes whenever possible by conciliation between the parties;

For these reasons:

Decides that the Committee is duly authorised, and should immediately institute an enquiry

And recalling that when the same question was, at the request of the Council of the League of Nations, examined by the Committee in its capacity as advisory body to the Council, it expressly reserved its entire liberty of action in the event of its being called upon to re-examine the question in its capacity of a conciliatory body:

Adopts the following resolution:

In order to examine the question raised by the request of the Governing Commission of the Saar Territory, transmitted by the Secretary-General of the League of Nations in his letter of July 29th, 1922, the Advisory and Technical Committee for Communications and Transit appoints a Commission of Enquiry for the purpose of studying the best means of settling, as far as possible by conciliation between the parties, the dispute between the Governing Commission of the Saar Territory and the German Government and of presenting a report to the Committee before January 1st, 1923, with this object.

The Commission of Enquiry will be composed of M. Herold, President of the Sub-Committee on Railway Transport of the Advisory and Technical Committee for Communications and Transit, President; M. Marriott, of the London & North-Western Railway Co., and M. Ruud, Commander, Chef de Division at the Administration of the Norwegian State Railways, experts taken from a list of experts chosen in advance by all the Governments of the States Members of the League of Nations. The Governing Commission of the Saar Territory and the German Government will also each be invited to nominate a member of the Commission of Enquiry who may be assisted by all the experts they may consider necessary, and who will have the right to take part in the work of the Commission of Enquiry in the same way as the members of this Commission who are nominated by the Advisory and Technical Committee for Communications and Transit, and upon a footing of absolute equality with them.

The Commission of Enquiry will be summoned by its President on such a date as he shall consider suitable after November 1st, 1922. It will meet at such place as shall be considered suitable. It will be empowered, as provided in the regulations adopted at the Barcelona Conference for the organisation of similar commissions, to require from all Governments such information as it may consider desirable. Its expenses will be met, with the exception of the expenses of the experts who will assist the members nominated by the Governing Commission of the Saar Territory and by the German Government, from the funds of the budget of the Organisation for Communications and Transit of the League. When the report of the Commission of Enquiry is submitted to the Advisory and Technical Committee for Communications and Transit, the Governing Commission of the Saar Territory and the German Government will each be invited to nominate a temporary member of the Advisory and Technical Committee who will participate upon a footing of absolute equality with the ordinary members of the Advisory Committee at all the deliberations of the Advisory Committee upon this subject.

The present resolution shall be communicated by the Secretary-General of the League of Nations to the Governing Commission of the Saar Territory and of the German Government, which will be invited to submit before October 15th next any observations they may think suitable.

ANNEX 5.

Explanatory Note to assist the Advisory and Technical Committee for Communications and Transit in its Examination of the Resolutions of the Genoa Conference, forwarded by the Council.

Article 8 of the Resolution adopted by the Genoa Conference on the report of the Transport Commission reads as follows:

Article 8.

" It is desirable that the competent Technical Organisations of the League of Nations, with the addition of one representative of any State which is not a Member of the League, in cases in which such State may be interested, should be invited:

" To examine from time to time the progress achieved in carrying into effect the provisions set forth in the preceding articles, and

" To this end to summon, with the consent of the States concerned, special conferences of experts.

" Nevertheless, the powers of the Permanent Commissions on Ports and Navigable Waterways of International Concern shall not be prejudiced."

It follows from this that, in virtue of this article and of the Council's Resolution, it is the duty of the Advisory and Technical Committee for Communications and Transit to keep itself accurately informed of the progress made in the application of the provisions laid down in the preceding articles, so that if necessary it may take steps to convene special meetings of experts.

The provisions of these preceding articles should therefore be examined in detail from this point of view.

Article 1.

" All European States should maintain their efforts to restore or improve the organisation of their railways, their ports and their maritime and fluvial means of communication. If these railways, ports or means of communication are not in a satisfactory condition, and if the State concerned has not at its disposal the necessary resources to secure their restoration, steps should be taken without delay to procure for it the necessary assistance. To this end it is desirable that States which are in need of assistance should organise surveys with the aid of competent experts."

In pursuance of the application of this article, the Advisory and Technical Committee should be called upon to deal with:

1. The steps taken by the different European States to restore or improve their various means of communication;

2. The amount of assistance given at any time for this purpose by one nation to another.

ARTICLE 2.

" It is desirable that all the European States signatory of the Convention concluded at Barcelona on April 20th, 1921, regarding Freedom of Transit and the Regime of Navigable Waterways of International Concern, should ratify these Conventions at the earliest possible moment if they have not already done so, and that the European States which are neither signatories of these Conventions nor parties thereto should put their provisions into operation without delay. "

The execution of this article lays no new duty on the Advisory and Technical Committee with which it has not already been charged.

ARTICLE 3.

" The European States represented at Genoa note with satisfaction the work accomplished at Barcelona in regard to the regime of international ports. They deem it desirable that the Conventions relating to ports, railways and waterways contemplated by the Treaties of Peace should be prepared and put into operation as soon as possible, and they deem it equally desirable that the recommendations of the Conference of Barcelona regarding the international regime of railways should be put into operation without delay.

Mention should be made of the following points in connection with the Conventions referred to in this article;

(*a*) The general convention on the International Regime of Railways provided for in Article 379 of the Treaty of Versailles.

The preparation of this Convention being already on the agenda of the Committee, no new duties result from this provision;

(*b*) The Convention provided for in Article 366 of the Treaty of Versailles for the transport of passengers, luggage and goods by rail to replace the Berne Convention of October 14th, 1890. This Convention is prepared in accordance with a procedure in which the Advisory and Technical Committee does not take any direct part, but with a view to the application of that article, it will be obliged, as it has already done in the past, to keep itself carefully informed of all measures taken for the drawing up of this Convention.

Information on this subject might be officially requested from the Central Office at Berne. It is possible that, should the drawing up of this Convention take too long, the Committee might be called upon to approach the Governments and remind them how desirable it is that this question should be settled speedily.

(*c*) The Convention on the International Regime of Ports provided for in Article 379 of the Treaty of Versailles. This Convention is to be drawn up in the same manner as the Barcelona Conventions. The Committee is empowered on its own initiative to prepare all preliminary drafts to be submitted to the Governments. This question is also brought up in connection with the question of the equitable treatment of commerce, and should be closely examined by the Committee.

(*d*) The Convention relating to rivers. This deals with different navigation acts and conventions relating to the Danube, the Elbe, the Oder and the revision of the Mannheim Convention concerning the Rhine.

The Statute of the Danube has been drawn up by the special conference which met for that purpose. The only duty of the Advisory and Technical Committee is to obtain official information as to the present state of ratifications.

With regard to the Navigation Acts of the Elbe and the Oder, the Committee, through its connection with the River Commissions, is already officially supplied with all information, and it would not appear that any intervention is, at present, desirable for the reduction of the periods fixed for drawing up these connections. The Navigation Act of the Elbe has recently been signed; the Oder Act is in normal course of preparation.

With regard to the proposed revision of the Mannheim Convention concerning the Rhine, the Committee might draw the attention of the Central Commission for the Navigation of the Rhine to the text adopted by the Genoa Conference. The normal relations with the River Commission will be sufficient to allow the Advisory and Technical Committee to carry out the task entrusted to it.

ARTICLE 4.

" Pending the conclusion of the new Convention relating to the transport by rail of passengers, luggage and goods, the European States whose railways were subject to the regime of the Berne Convention should undertake to put this Convention into force without delay if it is not already in force. "

With a view to the application of this article, the Committee should take the necessary steps at all times to collect information as to the application of the Berne Convention pending the preparation of the new Convention. Information might be officially requested from the Central Office at Berne; any necessary action might subsequently be proposed according to the nature of the reply received.

Article 5.

" The Conference notes with satisfaction the assurance given by all the States signatory to the Agreements for the regulation of international railway traffic concluded at Porto Rosa on November 23rd, 1921, that they have put, or are putting, the said Agreements effectively into operation. The European States not signatory to these Agreements likewise accept their general principles, with a view to putting them into operation with the least possible delay in so far as they are applicable to them. "

With a view to the application of this article, the Committee should take the necessary steps to be exactly informed at all times of the situation with regard to the application of the Porto Rosa agreements or the putting into practice of the principles contained therein.

Article 6.

" Without prejudice to the foregoing provisions, and in order that all possible steps may be taken without delay to restore international traffic to a condition at least as satisfactory as that existing before the war, the States represented at Genoa recommend that the various French railway administrations should convoke at the earliest possible moment a conference of technical representatives of all the railway administrations of Europe and of the countries interested, so that:

" (1.) These administrations may put into operation immediately all measures to this end which are within their competence; and

" (2.) The representatives of the administrations may agree upon proposals to their respective Governments for such further action as may require governmental intervention.

" At this meeting, which should especially endeavour to establish between the administrations concerned the closest possible collaboration without sacrificing in any degree the autonomy of the several lines and, without trenching upon the functions of existing international associations, the technical representatives should examine, among other questions, the creation of a permanent conference of railway administrations for the assimilation and improvement of the equipment and operating methods of the railways with a view to international traffic.

" Among the principal items on the agenda of this conference shall be the question of through tariffs and the mitigation of the impediments to international transport occasioned by exchange fluctuations. "

The Committee should be exactly informed at all its stages of the measures taken as a result of this article. It will doubtless have all documents for this purpose communicated to it. The agenda of the Conference consists of two parts: one dealing with measures which railway administrations as such can take immediately; the other with proposals to be submitted to the Governments in respect of measures requiring Government action.

With regard to measures within the competence of railway administrations, it would not appear that the Committee should take any direct action to assist the execution of the resolution, since questions of a strictly techincal nature are involved which can be settled between railway administrations.

On the other hand, when we come to measures within the sphere of Government action, it would appear extremely probable that international measures by Governments, which the Railway Administrations Conference might be called upon to propose, could eventually be sanctioned by the General Convention on the International Regime of Railways which the Committee is at present preparing.

It is therefore highly desirable that direct liaison in respect of that part of the duties of the Railway Administrations Conference should be established between the work of the Committee and that of the Conference on questions of this kind, in order to avoid any duplication and also to enable the Railway Administrations Conference to obtain all information on the preparation of the General Convention, just as the Committee might receive direct from the Railway Administrations Conference, information likely to help the framing of this Convention. From this point of view it would appear desirable, particularly as the Railway Administrations Conference is convened in virtue of one of the resolutions of the Genoa Conference — the application of which the Committee should at all times examine — that the Secretariat of the Committee should be authorised to supply to the Conference and receive from it all written or oral information which might be requested and which would be such as to assist towards the necessary co-operation.

Article 7.

" Seeing that the restoration of railways and waterways will take a certain time, the Commission recommends that services of motor transport should be established provisionally in cases where it may be practicable and desirable. "

For the application of this article, the Committee should take the necessary steps to obtain information at all times on the state of motor transport and any fresh needs that may arise.

* * *

It would appear to follow from what is said above that the consideration of the application of a large number of the articles of the Genoa Resolution can be carried out by the Committee by the actual methods of enquiry and co-operation with various international bodies (Berne Office, River Commissions, Railway Administrations Conference) which it has hitherto employed. As regards others, such as the preparation of the Convention on Ports, the continuation of the work of putting into force the texts adopted at Barcelona, the application of the Genoa Resolutions is the direct task of the Committee and is dealt with solely by work, either already undertaken or in contemplation, by the League's Organisation for Communications and Transit. In respect of other articles which are among the most important from a practical point of view, such as Articles 1, 5 and 7, the tasks entrusted to the Committee would appear to necessitate a permanent work of documentation and examination of the material position of transport and traffic conditions in various European States which the Committee has not hitherto undertaken.

In order to carry out the work entrusted to it by Article 8 of the Genoa Resolution concerning such questions, the Secretariat of the Committee, which has to prepare the work, will, it seems, be obliged to supply it periodically with a statement on the European situation from the point of view of the application of these Genoa Resolutions, that is to say from the point of view of national efforts towards the restoration and improvement of the means of communication, the progress of assistance given by one nation to another (Article 1), the application to international traffic by rail of the Porto Rosa agreements and principles (Article 5), and of the establishment of motor transport services (Article 7).

This information can hardly be supplied merely by questionnaires which, in view of the nature of the enquiries, would be necessarily either too general, and so would not give a satisfactory answer, or too detailed, and would therefore, by their frequency, very naturally weary the governmental administrations.

The only effective method of continuing this task would seem to be a direct study of the question, and particularly in every country a practical and continuous liaison between the Secretariat and the services concerned with the help of the members of the Committee in the case of States which have nominated members on the Committee.

In this work, both of research and co-ordination of information, the Secretariat might find it necessary for the preparatory study of certain specially technical questions to ask for the assistance of experts appointed for that purpose by the Chairman of the Sub-Committee concerned acting in the name of the Sub-Committee.

ANNEX 5 a.

Decision of the Committee with regard to the Resolutions of the Genoa Conference.

The Committee approved the Secretariat's note concerning measures for the execution of the resolutions of the Genoa Conference.

ANNEX 6.

Letter from the Secretary of the Advisory Committee on Traffic in Opium to the Secretary-General of the Advisory and Technical Committee for Communications and Transit.

GENEVA, *July 8th*, 1922.

Sir,

At the recent meeting of the Advisory Committee on Traffic in Opium, the question arose as to what kind of measures could be taken in free ports or free zones in order to prevent the import and export of opium and other dangerous drugs through those free ports or free zones. This problem constitutes for the moment one of the greatest difficulties when attempting to control the opium traffic; this is evident from the facts presented to the Opium Committee.

In order to give effect to the wishes of the Opium Committee, the Secretary-General of the League has sent to all interested Governments a circular letter (Annex 6 a).

As the measures to be taken involve the technical enquiry into the regime of free ports, may I ask you to present the question to the Advisory Committee for Communications and Transit at its next meeting, so that the Transit Committee may consider the question and advise the Opium Committee as to what practical measures from its point of view can be taken in free ports or free zones to prevent illicit drug traffic and, if possible, what kind of technical proposals could be made to the Governments to that effect.

Any further information relevant to this question shall be communicated to you immediately.

I have the honour to be, Sir, your obedient servant,

(*Signed*) RACHEL CROWDY,
Secretary to the Advisory Committee on Traffic in Opium.

ANNEX 6 a.

Circular Letter from the Secretary-General of the League of Nations to all Governments concerned.

Geneva, July, 1922.

Sir,

I have the honour to inform you that at the recent meeting of the Advisory Committee on Opium it was decided to approach all Governments of those countries whose territories include free ports or free zones, enquiring as to the position in regard to these Free Ports or Zones in connection with the import and export of dangerous drugs. I am instructed to enquire if, in the event of no control being at present enforced, your Government would feel it possible to take such steps as may be necessary in order to assume full control over these imports and exports.

Certain members of the Advisory Committee suggested that, although a free port or zone may be considered as outside the customs frontier regulations, it might be possible for each country concerned to enforce special regulations in order to exclude these drugs from free port or zone privileges, and the Advisory Committee of the League of Nations for Communications and Transit has been asked to study the possible proposals on this matter.

It has been pointed out by certain members of the Advisory Committee that only by the enforcement of effective measures in all countries can the illicit traffic in drugs be suppressed. The Advisory Committee is of the opinion that a grave danger will continue to exist so long as the uncontrolled passage of drugs through the free ports or free zones of the world is permitted.

I have the honour to be, Sir, your obedient servant,

Secretary-General.

ANNEX 6 b and bb.

Resolution on Traffic in Opium in Free Ports.

The Committee for Communications and Transit, having been informed by the Opium Committee regarding the question of the control of the opium traffic in free ports, points out in the first place, in order to avoid possible misunderstanding, that the regime of free ports — which is, essentially and exclusively, a customs regime — would not form an obstacle to the application of special police measures, particularly as regards the supervision of harmful and narcotic substances, provided that such measures do not cause any hindrance to the regime of commercial and industrial freedom, which it is the object of the free ports to develop.

In bringing these observations to the notice of the Opium Committee, the Committe for Communications and Transit informs it that it is considering what police measures might be taken for the above-mentioned purpose.

Further, with a view to entering upon the study of this question, the Committee for Communications and Transit, acting in co-operation with the Opium Committee, has decided to appoint a special Sub-Committee composed of M. de Aguero y Bethancourt, (Chairman), M. Chargueraud, M. Holck-Colding, M. Montarroyos, M. Stievenard and M. Tcheou-Wei.

ANNEX 7.

Report of the Sub-Committee for Hydro-Electric Questions.

The Sub-Committee met on August 31st, 1922, to consider the questions on its agenda. It discussed the outlines of the provisions to be included in a draft Convention on the Transmission in Transit of Electric Power.

The Sub-Committee, as a result of its discussions, is of opinion that it is urgently necessary to collect information on precedents on this subject.

The Secretariat is requested to prepare a new text for a draft convention establishing a basis of discussion at a future session by giving prominence to the principles underlying these precedents.

The same applies to the draft Convention concerning the Utilisation of Hydraulic Power on Waterways traversing or separating several States.

With regard to question No. 3, "Cession of electric power for the purposes of traction on railways of international concern," the Sub-Committee has decided to consult the Railway Sub-Committee as to the possibility and desirability of inserting an article on this subject in the General Convention on the International Regime of Railways.

ANNEX 8.

Letter from the Secretary-General of the Health Committee to the Secretary-General of the Committee for Communications and Transit.

[*Translation.*] GENEVA, *August 30th*, 1922.

Sir,

The Chairman of the Health Committee of the League of Nations has instructed me to inform you that the Health Committee, when considering what action should be taken to carry out the recommendations of the European Health Conference at Warsaw, which have been approved by the Genoa Conference, dealt with the question of regulations concerning the spread of epidemic diseases on waterways.

The Warsaw Conference recommended that, as soon as possible, regulations should be laid down with regard to traffic by water between neighbouring States, including traffic on rivers of international concern traversing the territory of several States. The Health Committee therefore appointed a special Sub-Committee to consider whether, in principle, it was desirable to lay down regulations on this matter. Seeing that the question of the navigable waterways concerns the Permanent Advisory Committee for Transit, and in order clearly to show its desire to establish a close co-operation between itself and the other technical organisations of the League of Nations, the Health Committee has decided to ask the Permanent Advisory Committee for Transit to nominate three of its members to form, along with members of the Health Committee, a mixed Sub-Committee to examine the whole problem and submit a report to the Health Committee at its next meeting.

I shall be very grateful if you would be so good as to submit this request to your Committee.

I have the honour to be, etc.

(Signed) L. RAJCHMAN,
Medical Director.

ANNEX 9.

Letter from Mr. Baldwin to the Secretary-General of the Advisory and Technical Committee for Communications and Transit. With reference to the signature and Ratification of the Barcelona Conventions.

SWINEMUNDE, *July 17th*, 1922.

Sir,

The delay which has taken place in signing and ratifying the Convention on Navigable Waterways of International Concern which was drawn up at Barcelona has rendered, and is still rendering, difficult the conclusions of the conventions which, in accordance with the stipulations of the Peace Treaties, are to govern the administration of certain waterways.

If, as is possibly the case, the delay is due to doubts entertained by certain Governments with regard to the interpretation and practical application of the articles of the convention in question, I suggest that the Advisory and Technical Committee for Communications and Transit is eminently the organisation before which such doubts could be resolved. In any case, it appears to me that a discussion of the subject would tend to hasten the fulfilment of the recommendations regarding the early signature and ratification of the Convention which have been made at Genoa and elsewhere.

In the circumstances, I beg to suggest that the question be placed on the agenda of the next meeting of the Committee.

I am, Sir, your obedient servant,

(Signed) J. BALDWIN.

The Secretary-General,
Advisory and Technical Committee
for Communications and Transit.

ANNEX 9 aa.

Resolution with regard to the Ratification of the Convention on the Regime of Navigable Waterways of International Concern and to the Adhesions thereto.

The Committee, with a view to facilitating as far as possible the ratification of the Convention on the Regime of Navigable Waterways of International Concern, or the adhesions thereto which were again requested by the Genoa Conference, in a Resolution forwarded by the Council, the execution of which is to be supervised by the Committee, is of opinion that in certain cases misunderstandings may place difficulties in the way of these ratifications or adhesions, and, for these reasons, considers it desirable that the Governments concerned, and especially the States taking part in drawing up a Navigation Act for a waterway of international concern, should, in such cases, take all suitable measures to make certain that such misunderstandings do not exist, or, if they exist, to dispel them.

It draws the attention of Governments which may not be prepared at present to ratify or to give their adhesion to the Convention to the advisability of refraining from a definite refusal until such efforts have been made.

It invites the Secretary-General of the League of Nations to encourage, by every means in his power, the conclusion of all agreements of this nature, it being, however, clearly understood that such agreements should in no case and in no way derogate from the rights of other States which are Contracting Parties to the Convention.

ANNEX 10.

Note on the Reform of the Calendar.

I. *History of the present Calendar.*

The Julian Calendar, established by Julius Cæsar as Grand Pontiff, was, according to the tradition of the nations of Western Europe, the first solar calendar established. The length of the solar year was fixed at 365¼ days. As the civil year contained 365 days, an additional leap-year every four years brought the calendar into conformity with the sun. The months, which numbered ten under Romulus, were increased by Numa to twelve by the addition of Januarius and Februarius, and they were retained without modifying the names of the last months which, instead of being the 7th, 8th, 9th and 10th, became respectively the 9th, 10th, 11th and 12th; they kept the erroneous titles of September, October, November and December.

The modification which gave to the months the number of days which they still possess also dates from the time of Julius Cæsar.

The Julian Calendar, which is still used by the Orthodox Church, remained in use, with certain modifications, until 1582, when the reformed Gregorian Calendar was substituted.

The Gregorian Calendar is the one which is now almost universally used. It is the Julian Calendar gradually transformed since the time of Julius Cæsar, but modified in one all-important particular in 1582 by Pope Gregory XIII. Julius Cæsar had established a year of 365 days, plus a quarter of a day, which was made to constitute a whole day every four years, added to the so-called leap-year. But this conventional leap-year was too long, for the tropical year was only 365 days, 5 hours, 48 minutes, 45.922 seconds long, which made a difference of 0.0078013 days per annum, which amounts to one day every 128 years or 3.12 days every 400 years. At the end of the 16th century an error of 10 days had accumulated. Gregory XIII decreed that Friday, October 15th, 1582, should follow Thursday, October 4th of the same year. It may be noted,

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[1] This note is not to be considered as a piece of original research undertaken by the Secretariat, nor should the latter be considered as in any way responsible for it. In conformity with the decisions of the last meeting of the Advisory and Technical Committee for Communications and Transit, the secretariat presents to the Committee a statement of the facts based, as far as possible, on reports already submitted to various international organisations.

The present statement was therefore very largely compiled from the most recent reports, namely, M. Deslandres' report to the Congress of the International Chamber of Commerce of June 1921; the report submitted to the International Chamber of Commerce by M. Baar, member of the International Chamber of Commerce's Committee for the Reform of the Calendar; and the report of M. Bigourdan, President of the International Astronomical Union's Committee for the Reform of the Calendar, which he submitted to that Union at its Congress in Rome in May 1922.

The following works were also consulted :

Bruin, F. de :	*Onze Kalender*, Antwerp, 1911.
Carret, Jules, Dr. :	*Réforme du Calendrier*, publication de la Fédération des Libres Penseurs de la Savoie, Chambéry, 1909.
Chambres de Commerce et des Associations commerciales et industrielles :	*Rapport de la Chambre de Commerce et d'Industrie pour la Basse-Autriche, concernant la fixation des fêtes de Pâques*, présenté par le 3me Congrès international, Vienna, 1908.
Commission de la Classe d'Industrie et de Commerce de la Société des Arts pour le projet Grosclaude :	*La Réforme du Calendrier*, Geneva, 1910.
Cotsworth, B., of York :	*The Rational Almanac*, York, 1902.
Delaporte, Paul :	*Le Calendrier universel*, Paris, 1913.
Flammarion, Camille :	*Les Imperfections du Calendrier*, Paris, 1901.
Foerster, Wilhelm, Prof. :	*Kalenderreform*, Charlottenburg, 1910
Grosclaude, L.-A., Prof. :	*La Réforme du Calendrier*, Geneva, 1900.
" " "	*Le Calendrier invariable*, Geneva, 1900 et 1912.
Harcourt, Robert :	*Calendar Amendment Bill*, London, 1912.
Kewitsch, Georg :	*Die Astronomische Era*, Fribourg, 1901.
Kirkcaldy, John C. :	*A Plea for Calendar Reform*, Edinburgh, 1910.
Philip, Alexander :	*A Note as to Calendar Reform*, Brechin, 1912.
" "	*A Proposal for a Simplified Calendar*, Edinburgh, 1908.
" "	*The Calendar: its History, Structure and Improvement*, Cambridge, 1921.
Plaza, C. de la :	*La Reforma del Calendario*, Bilbao, 1912.
Raemy, Charles de, Abbé :	*La Réforme du Calendrier*, Fribourg, 1911.
Reininghaus, Fritz :	*Kalender-Reform-Vorschlag*, Zurich, 1910.
Smith, Oberlin :	*Reforming the Calendar*, published by *The Popular Science Monthly*, 1912.
Vincent-Arnould :	*Réforme des Calendriers*, Brussels, 1912.
Vorort de l'Union suisse du Commerce et de l'Industrie aux sections :	Zurich, 1910.
Zech-Levie :	*Essai sur le Calendrier grégorien « modernisé »*, Braine-le-Comte, 1909.

moreover, that the order of days was not changed and that Thursday, October 4th, 1582, was followed by Friday, the 15th, whereas, without this readjustment, October 15th would have been a Monday. France, Spain and Italy immediately adopted this reform, which was adopted in Germany in 1700 and in England in 1752.

The Gregorian Calendar was adopted under the name of the Solar Calendar by Japan on January 1st, 1873, and by China on February 12th, 1912. At the time of the outbreak of the war, 1914, the Julian Calendar was only retained in countries of the Greek Orthodox Church. Since then, Russia has also adopted the Gregorian Calendar. Hence the unification of the calendar on the basis of the Gregorian Calendar is nearly, but not quite, complete, and any reform of the present calendar should therefore be a reform of the Gregorian Calendar. Recent events show that in countries still using the Julian Calendar, the substitution of the Gregorian Calendar, and especially of an improved Gregorian Calendar presenting greater advantages, appears to present less difficulties than formerly.

II. *Disadvantages of the Gregorian Calendar.*

The disadvantages of the Gregorian Calendar are as follows :

(1) *Cycle of leap-years.* — As is well known, three leap-years are omitted from a Gregorian cycle of 400 years. This cycle is not perfect, for it leaves only out one leap-year in 133 1/3 years, whereas this omission should be made every 128 years. Though this error is a real one, its effect is only felt at the end of a very long period, for a day's error will not occur until about the year 4,000; even a correction decided upon to-day might be incorrect at the moment of its application. Hence, a modification of the Gregorian cycle has very few advocates.

(2) *Beginning of the year.* — Another fault of the Gregorian Calendar is the arbitrary nature of the origin or beginning of the year now fixed at our present January 1st. There can be no doubt that it would be more scientific to advance the beginning of the year by ten days so that it corresponds to the Winter Solstice; this would make it easier, for instance, to compare meteorological statistics. Some authorities, indeed, propose that the beginning of the year should be fixed at the Winter Solstice, while others favour the Spring Equinox. This question of the beginning of the year is, moreover, related in some measure to the fixing of the financial year in different countries. In regard to a possible reform, the example of England is not very encouraging, for the financial year begins on April 6th, which corresponds to March 25th (Old Style), which was the beginning of the civil year until 1752, and no change has been made for nearly two centuries.

(3) *Names of the months.* — As has already been mentioned, these are erroneous, the month of September, for example, which is the 9th, being called the 7th; and, similarly the last three months of the year are also inaccurate. This is certainly indefensible, but of little practical importance. The disadvantages to be mentioned later are much more important than those which have just been discussed.

(4) *Inequality in the length of the divisions of the year.* — The divisions of the year, the months, quarters and half-years, are of unequal length. The months contain from 28 to 31 days. As a result, the number of days in the quarters are respectively 90 (91 in a leap-year), 91, 92 and 92. The first half-year, therefore, contains two or three days less than the second. Another result is the unequal number of weeks included in the quarters and half-years.

The unequal length of months, quarters and half-years is a cause of confusion and uncertainty in economic relations, in the arrangement of all statistics, accounts, commercial and transport figures, etc.

The fact that the months contain 28, 29, 30 or 31 days is responsible for the fact that all calculations of salaries, interest, insurance, pensions, leases and rent which are fixed on a monthly, quarterly, or half-yearly basis are inaccurate and do not correspond with a one-twelfth, one-quarter or half of the year. In order to make daily calculations in current accounts with comparative certainty and speed, banks are obliged to make constant use of special tables. Moreover, in the majority of the countries of Europe, the unequal length of the months has led financial concerns to calculate deposit and current accounts on the basis of a year of twelve months of thirty days, or a year of 360 days, whereas in the discounting of bills the year is still reckoned at its exact number of days. Finally, the quarters and half-years do not contain an exact number of weeks.

(5) *Concordance of days, weeks and days of the month; want of fixity in the Calendar.* — The calendar is not fixed: it changes each year; the year, in fact, consists of 52 weeks, plus one or two days. Thus, if the first day of the year is a Sunday, inthe following year it is a Monday (or even a Tuesday in the case of a leap-year). Were it not for the extra day of leap year the calendar would only have seven different alternatives corresponding to the seven days of the, week on which the year can begin; owing, however, to the extra day of the leap-year, the exact *reproduction* of the calendar of any year only takes place once every 28 years. Thus, the day of the month falls each year on a different day of the week from the one on which it fell the previous year. In consequence:

(*a*) The dates of periodical events can never be fixed with precision. Such a date can, in fact, only be determined in two ways: either by the day of the month (August 15th for example) or by the day of a week in the month (the third Tuesday in October). With the present Gregorian Calendar, this double method is not precise, for if the day of the month is fixed for periodical events, this day may sometimes fall on a Sunday or general holiday.

Each year, therefore, the authorities have to make a special decision, as for instance for the meeting of a tribunal, the convocation of Parliament, the dates of holidays, fairs, markets, administrative assemblies, the fixing of summer-time, etc.

On the other hand, if a special day (the first Monday in the month, for example) is fixed for these events, other difficulties arise, as the date corresponding to this day varies continually from month to month and from year to year.

If the calendar were fixed, the dates of these events could be fixed once and for all. They would fall on the same dates as well as on the same days of the week.

(*b*) The position of the weeks in the quarters varies each year, that is to say, the weeks overlap the divisions of a year in a different way each time, and complications accordingly arise in the reckoning of accounts, statistics, etc.

(*c*) The 1st, 15th and 30th of a month are sometimes Sundays. When the 1st of a month falls on a Sunday, it is not possible to revise and verify immediately all the work of the previous months and quarters and to establish without delay the various comparisons which are essential from a business point of view. This is a serious disadvantage in respect of accounts and statistics. The 15th and 30th of the month are very important dates as regards the falling due and the payment of rents. When these dates are Sundays, the payments must be postponed or advanced.

(*d*) Fixed holidays are sometimes badly placed and coincide with working days in the middle of the week. Moreover, the days of enforced idleness are, generally speaking, too numerous from the point of view of general welfare at the end and at the beginning of the year, and not sufficiently numerous in the middle.

III. *Recent International Movements in favour of Reform of the Calendar.*

In view of these considerations, it is not surprising that there have been international movements in favour of the reform of the calendar. The following may be cited:

In 1900, the Evangelical Conference at Eisenach.

In 1910, the London Congress of the Permanent International Committee of Chambers of Commerce and of Commercial and Industrial Associations.

In 1914, the Paris Congress of the same associations, which requested the Swiss Government to convoke an international conference on the question.

In 1914 also, the Liége Congress, held at the instance of the Liége Industrial Exchange, at which religious, scientific, commercial and industrial authorities were present.

In 1919, the Congress of the International Astronomical Union, which formed a special committee for the study of this question, and of which one of the presidents is Cardinal Mercier.

In 1921, the Congress of the International Chamber of Commerce, which met in London and heard and approved the report of M. Deslandres on the question.

In 1922 (May), the Congress of the International Astronomical Union held at Rome, to which was submitted the report of M. Bigourdan, one of the Presidents of the Special Committee.

IV. *Principles of the Proposed Reforms.*

It does not appear necessary to give even an outline of the details of the proposed reforms; they will have to be examined at a more advanced stage by the specialists concerned, but a statement of their principles may be useful, for the study of such a statement will indicate that, in spite of the large number of plans put forward, there is a general tendency towards agreement on certain main lines.

The numerous schemes for reform which have so far been recommended may be divided into three classes:

(*a*) *Simple reform*, equalising the months and quarters, but retaining the week intact and establishing a partly satisfactory concordance between the days of the week and the dates of the month.

(*b*) *Partial reform*, leaving one day or two days each year outside the week according to whether it is an ordinary year or leap-year.

(*c*) *Radical reform*, also leaving one or two days each year outside the week, but dividing the year into thirteen months.

(*a*) *Simple Reform.*—The following scheme may be quoted as an example in which the months and quarters are practically of uniform length. Each quarter is to be composed of one month of 31 days, followed by two months of 30 days. In ordinary years the last month would have thirty-one days, and in leap-year thirty-two days, unless it were preferred in the case of a leap-year to have thirty-one days also in the penultimate month. Each of the first three quarters would thus contain ninety-one days, or exactly thirteen weeks, and therefore, during almost

all the year the same days of the week would fall on the same dates of the month. If, for example, the first day of the year were a Sunday, April 1st, July 1st and October 1st would also be Sundays; and then the first day of the second and third months of the quarter would be a Wednesday and a Friday, the difference being always three days and two days respectively.

Another advantage of this scheme is that it would enable one to calculate immediately the day of the week corresponding to date, and vice versa. To the same class of reform belongs the system of dividing the quarter into two months of twenty-eight days or four weeks, and a third month of thirty-five days or five weeks, — a system constituting a considerable departure from our habits.

(*b*) *Partial Reform, placing one or two Days each Year outside the Week* — The year being composed of 365 days, or 52 weeks of seven days plus one day, the calendar could be made a fixed one by leaving this additional day (two in the case of a leap-year) outside the series of weeks.

Under the title of dateless day, or day outside the week, or blank day, schemes of this type leave one day outside the week each year in ordinary years and two in leap-years, thus breaking the continuity of the week which has been retained for several thousand years. This reform recalls the supplementary days of the French Revolutionary Calendar and the intercalary days of the Egyptian Calendar. On the other hand, it retains the traditional twelve months. An example of a calendar of this type submitted by M. Deslandres to the Congress of Chambers of Commerce and Commercial and Industrial Associations in London in June 1910 is given below:

1st Quarter 2nd ,, 3rd ,, 4th ,,	January April July October					February May August November					March June September December				
Monday	1	8	15	22	29	—	6	13	20	27	—	4	11	18	25
Tuesday	2	9	16	23	30	—	7	14	21	28	—	5	12	19	26
Wednesday	3	10	17	24	—	1	8	15	22	29	—	6	13	20	27
Thursday	4	11	18	25	—	2	9	16	23	30	—	7	14	21	28
Friday	5	12	19	26	—	3	10	17	24	—	1	8	15	22	29
Saturday	6	13	20	27	—	4	11	18	25	—	2	9	16	23	30
Sunday	7	14	21	28	—	5	12	19	26	—	3	10	17	24	31

New Year's Day precedes Jan. 1st, and the Leap-Year Day precedes July 1st; they are counted outside the week.

In this way all the quarters and halves of the year are uniform; each month has an equal number of working days; the 1st, 15th and 30th of each month, which are important dates for present habits, are never Sundays; it is very easy to reckon by heart the dates and days of the week, and the 31st which comes at the end of each quarter is always a Sunday.

(*c*) *Radical Reform with Blank Days and a Year divided into Thirteen Months.* — The systems of this type, which involve a greater disturbance of our present customs, divide the year into thirteen months of twenty-eight days or four weeks each, making a total of fifty-two weeks, or 364 days, to which are added one or two blank days as in (*b*). A calendar of any year would therefore be reduced to a table which could be applied indifferently to every month and would be similar to the following:

Sunday	1	8	15	22
Monday	2	9	16	23
Tuesday	3	10	17	24
Wednesday	4	11	18	25
Thursday	5	12	19	26
Friday	6	13	20	27
Saturday	7	14	21	28

One or two blank days would have to be added either between the 28th of the last month and the first of the first month, or at some other time. Obviously such a calendar would be a perpetual one, and would fulfil the principal requirements indicated, for all the months would be equal; they would have the same number of Sundays, and the same number of working days, with the exception of a few festivals, etc. This type of calendar would appear to be the best, that is if it were possible to break completely with the past. But possibly the division of the year into thirteen months would be rejected *a priori*.

V. *The Question of Easter and Movable Festivals.*

A further question arises with regard to the present calendar, quite apart from the general question of reform. This question is the stabilisation of the date of Easter.

The date of Easter varies at present between March 22nd and April 25th, *i. e.* over a period of thirty-five days, and involves a corresponding displacement of the movable festivals. Numerous

disadvantages are the result, both from a civil and a religious point of view. In the civil sphere, university and judicial activities, and commercial interests, including those relating to transport, are particularly affected. The beginning of the scholastic year and some of its holidays are fixed, whereas others are movable. The same disadvantages apply to judicial or administrative holidays. Many commercial transactions and the transport services connected with them are severely prejudiced by the changing date of Easter, in particular, business dealing with textiles, articles of fashion and the hotel-keeping industry, since Easter marks the beginning of the spring fashions and is an important date from the tourist point of view. If Easter is early, the weather of the northern hemisphere being unfavourable in the temperate zones at this time of the year, travelling and changes in dress are postponed. If, on the other hand, Easter is late, there is more tourist business, but the textile trade in spring wear is severely injured, because summer articles are purchased at once. In a general way the organisation of traffic and transport is disturbed by the changing date of Easter. From the religious point of view, there are disadvantages due to the fact that the number of Sundays in the year being practically fixed, the services of the Roman Catholic liturgy, which cannot take place before Easter when this festival is early, have to be postponed until after Whitsuntide.

The question of fixing the date of Easter and of the movable festivals has frequently been raised concurrently with the question of the reform of the calendar, although it is a question which can be treated independently of the general reform of the calendar. Views expressed by the religious authorities on this subject do not indicate an entirely obstructive attitude.

I. *Conclusions.*

The various factors in the question of the reform of the calendar as set forth above would appear to indicate the following division of enquiries and work to be undertaken:

(*a*) *Standardisation of the Calendar and the question of the Julian Calendar.* — It is necessary to know whether the authorities of the countries utilising the Julian Calendar would be disposed, in principle, to give up the use of this calendar and adopt a calendar on the Gregorian basis, either the present Gregorian calendar or a modified form of it.

(*b*) *Question of Easter and the movable festivals.* — It should be ascertained whether the religious authorities concerned are disposed, in principle, to consider the stabilisation of the date of Easter and of the festivals, the dates of which depend on the date of Easter.

(*c*) *Reform proper of the Calendar.* — It should be ascertained, in the first place, whether the religious authorities concerned would make any absolute objection, in principle, to breaking the continuity of the week by introducing days without dates outside the week. If on these questions there is general agreement, a more or less radical reform of the calendar might be considered and the type of reform selected.

Subsequently, commercial, administrative, technical and scientific circles could be consulted with a view to drafting a calendar on the lines of the type of reform found to be feasible, and this calendar might then be submitted to a Conference.

ANNEX 11 a and aa.

Resolution regarding the Treatment of Shipping in Ports.

The Committee, having before it the question of the regime of ports, both as regards equitable treatment for commerce and also in connection with Article 379 of the Treaty of Versailles, referred to in the resolution of the Genoa Conference transmitted by the Council, decides to take as a basis for study the following provisions[1]:

The nationals, property and flags of all the Contracting States shall, in all seaports, enjoy, in all that concerns the use of the port, including port dues and charges, a treatment equal to that accorded to the nationals, property and flag of the State under whose sovereignty or authority the port is situated. It is understood that the property to which the present paragraph relates is property originating in, coming from or destined for, one or other of the Contracting States.

The equipment of ports and the facilities afforded in these ports to navigation must not be withheld from public use to an extent beyond what is reasonable and fully compatible with the free exercise of navigation.

In the application of customs or other analogous duties, local octroi or consumption duties, or incidental charges, levied on the occasion of the importation or exportation of goods through the

[1] These provisions correspond exactly with those of Article 9 of the General Convention on the Regime of Navigable Waterways of International Concern (article dealing with all ports situated on these waterways).

aforesaid ports, no difference shall be made by reason of the flag of the vessel on which the transport has been or is to be accomplished, whether this flag be the national flag or that of any of the Contracting States.

The State under whose sovereignty or authority a port is situated may withdraw the benefits of the preceding paragraph from any vessel if it is proved that the owner of the vessel discriminates systematically against the nationals of that State, including companies controlled by such nationals.

In the absence of social circumstances justifying an exception on the ground of economic necessities, the customs duties must not be higher than those levied on the other customs frontiers of the States interested on goods of the same kind, source and destination. All facilities accorded by the Contracting States to the importation or exportation of goods by other land or water routes, or in other ports, shall be equally accorded to importation or exportation under the same conditions over the navigable waterways and through the ports referred to above.

It is agreed that the consideration of the regime of maritime coasting trade is reserved.

The members and experts of the Committee are invited to consult, before the next session, with regard to the application of any particular provision, the various services concerned with which they are in touch.

ANNEX 11 b and bb.

Resolution concerning Customs Formalities.

The Committee, being of opinion that general provisions such as may be included in a general economic convention are insufficient as regards practical matters relating to customs formalities in rail transport, requests the Sub-Committee on Railways to consider the inclusion in the General Convention on Railways of special provisions for this purpose, analogous to those laid down in the Convention which was drawn up at Porto Rosa, bearing in mind at the same time the recommendations of the Conference on Passports, Customs Formalities and Through Tickets held at Paris in October 1920.

In this work the Sub-Committee on Railways should request the collaboration of technical advisers in practical questions relating to Customs.

ANNEX 11 c and cc.

Resolution concerning Equitable Treatment of Commerce in respect of Tariffs.

Whereas the Committee considers that:

Discrimination based upon grounds of nationality in connection with international transport traffic by rail is forbidden by the principle of equitable treatment of commerce;

Every country should accord perfect equality of treatment as regards international traffic on the same route across the interior of the country when this traffic is of the same nature, all consideration of nationality being set aside;

There should be the same equality of treatment for traffic also of a similar nature, by different routes, within a country, allowance being made for difference of routes;

This equality should be maintained in respect of transport of every kind, passengers, goods, etc;

The Committee therefore invites the Sub-Committee on Railways to consider the desirability of the following:

(1) Making provision in the General Convention on Railways for the above-mentioned rates and conditions of transport and the subsidiary operations carried out in this connection by the railway, to be fixed in the case of each State according to the economic conditions governing transport and in accordance with the legislation of the State, but in no case with a view to modifying, either directly or indirectly, the situation as established by commercial conventions;

(2) Drawing up this provision with particular reference to transport in transit in connection with the provisions of the Convention and Statute on Freedom of transit.

ANNEX 12 a.

Resolution concerning the drawing up of the General Convention on the International Regime of Railways (as adopted by the Sub-Committee).

The Sub-Committee for Transport by Rail approves the Memorandum prepared at the meeting of its Chairman and experts with regard to the drawing up of the General Convention on Railways.

It decides to pursue the work on the lines laid down in that Memorandum.

It is of opinion that, in view of the possible magnitude of this work and the care and deliberation which it requires, it ought to take into consideration the contingency that the work may not be entirely completed within the time-limits laid down, in particular by the Barcelona Conference.

In that case, the text which is to be drawn up might consist of a principal convention and one or more annexed conventions, the principal convention having to be completed within the specified period.

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In that case, the text of the General Convention which is to be drawn up might consist of a principal convention and one or more annexed conventions, the principal convention having to be completed within the specified period.

ANNEX 12 b.

Decision of the Committee regarding the Appointment of an Expert on the Sub-Committee on Transport by Rail.

The Committee decided that M. Tsang-Ou should be appointed as expert for the drawing up of the General Convention on the International Regime of Railways.

ANNEX 13.

Decision regarding the Publication of Documents relating to the Statutes of the Organisation for Communications and Transit

The Committee decided that the Secretariat should be instructed to publish the document relating to the Statutes of the Organisation for Communications and Transit.

GENERAL TRANSPORT SITUATION

IN 1921

LEAGUE OF NATIONS

GENERAL TRANSPORT SITUATION

IN 1921

Statements submitted by the States which took part in the First General Conference on Communications and Transit, held in March-April 1921

WITH AN INTRODUCTION BY

PROFESSOR TAJANI
Engineer, Professor of the Royal Polytechnic College, Milan.

VOL. I

GENEVA 1922

INTRODUCTION.

I.

Questionnaire on the Condition of Communications after the War.

The *General Conference on Communications and Transit* met at Barcelona in March and April 1921, in accordance with a decision taken by the Council of the League of Nations at its Rome Session (1921) under Article 23 (*e*) of the Covenant. It was then decided to invite all the States, including those which were not Members of the League, to forward a report on the condition of communications and transport in each country after the war, in reply to a questionnaire which will be found at the end of this introduction.

The following States replied to this invitation :

Austria,
Belgium,
Bolivia,
Brazil,
Bulgaria,
Canada,
Chile,
China,
Czecho-Slovakia,
Denmark,
Esthonia,
Finland,
France,
Germany,
Great Britain,
Greece,
Guatemala,
Haiti,
Hungary,
India,
Italy,
Japan,
Latvia,
Lithuania,
Luxemburg,
Netherlands and Dutch Indies,
Norway,
Panama,
Paraguay,
Persia,
Poland,
Portugal and Portuguese Colonies,
Roumania,
Serb-Croat-Slovene State,
Spain,
Sweden,
Switzerland.

The reports transmitted appear in the present volume in the order of this list.

The object of the enquiry was to show clearly the condition of communications and transport at the end of the world-war. It is generally admitted that economic life can only be restored to normal conditions if regular commerce is first guaranteed. It is obvious—there are innumerable signs which bear out this statement—that the means of communication must have suffered considerably as a result of the war. But our design, is to obtain, as far as possible, a quantitative estimate of the phenomenon to define its main features, to study its various aspects and to collect facts and information not merely for the purpose of satisfying a legitimate curiosity, but also in order to supply data calculated to facilitate and hasten the return to normal conditions at a time when the League is attempting to solve the most weighty problems of communications and transport.

The questionnaire was so drawn up as to furnish an exact guide for the drafting of the reports; it was, however, inevitable that, in replying to the questions, each country should adopt an individual point of view, and that the countries should, especially in the remarks annexed to the figures, give particular prominence to certain questions of special interest to them. It is also natural that, in their estimates of the situation, those countries which were victorious in the war should show a certain optimism, and that the conquered countries should tend to pessimism in their views on the present and future.

Nevertheless the effects of the war on transport have common features, but it is clear that these features vary more or less, and that the nature of the damage suffered also varies according to the position of the various countries, the part they played during the war, their distance from the theatre of war, and, lastly, according to the manifold circumstances which characterised the post-war situation. Apart from these considerations, if we bear in mind that, in each country, the writers of the memoranda were obsessed by certain problems which called for a speedy solution, and that, in several cases, the reconstitution of States on a different territorial basis made it impossible to utilise old statistical data or to obtain reliable new data, we see clearly why the reports are lacking in that homogeneity which would have made it possible to handle them with ease and derive immediate profit from them. This preface, which has been made as concise as the importance of the subject permits, aims at presenting this inquiry in a more accessible form, and grouping the main characteristics of the crisis through which the means of communications and transit passed after the war.

From this point of view it is necessary in the first place to discover the order in which the mass of facts and information in our possession should be summarised. Classification according to subject-matter corresponds to the form of the questionnaire. A distinction is drawn in the questionnaire between railways, ocean and inland navigation, and data relating to the less important questions of the development of motor and aerial transport. In this preface, we shall continue to lay stress on the

distinction between ocean and inland navigation ; there are, indeed, considerable differences between the two classes of water transport, which are equally apparent in all the reports received. Further, the questionnaire adopts a subject classification which, treating railways and waterways separately, takes the following order : *(a)* Information regarding stock ; *(b)* regarding traffic ; *(c)* regarding tariffs and freight rates ; *(d)* regarding fuel, and *(e)* regarding the financial position of transport concerns.

But a territorial classification is also necessary for obvious reasons of method. The distinction between European and non-European countries immediately suggests itself. Although countries belonging to every quarter of the globe took part directly or indirectly in the war, Europe was the real seat of war, and its effects are much more far-reaching and evident there than elsewhere. The study of the changes which have taken place in the means of communication since the war will be primarily based on information dealing with European States.

For this reason, after giving a general survey of the phenomena common to all States, we shall in this work separate facts which concern Europe from those connected with the situation in extra-European countries, particularly as we have only an incomplete report from the latter, since, to cite an important example, the United States of America, whose statement would have been extremely interesting, failed to answer the questionnaire.

In the case of Europe, whenever it was found necessary we have adopted a territorial grouping. Thus, when we speak of Central Europe, we mean the following group of States : Sweden, Norway, Denmark, Germany, Czecho-Slovakia, Switzerland, Austria-Hungary, and Italy ; similarly, when we speak of Western Europe we mean : England, Belgium, the Netherlands, Luxemburg, France, Spain and Portugal ; and of Eastern Europe : Poland, Jugo-Slavia, Roumania, Greece, Finland, Esthonia, Latvia and Lithuania. We have no official information as regards Russia.

In our opinion it is impossible to form an accurate estimate of the present situation without being familiar with at least the main outlines of the pre-war situation.

From a purely statistical point of view, the last tables published before the war by the *Archiv für Eisenbahnwesen* with regard to world railway development may be used. They date from the year 1912 and contain information as to the total length of the various systems, the ratio of their development to the area and population of each country, the cost of construction and the method of management (government or private). We reproduce here only that part which deals with Europe, limiting ourselves to data concerning the absolute length of lines, or their length in proportion to the area of the country and the size of the population. We have added the present extent of the railways in the various States as they exist after the war whenever the documents at our disposal rendered this possible.

Country	Length of line in operation in 1912 (in Km.)	Area (Sq. Km.)	Population (in millions)	Length in operation per 100 Sq. Km.	Length in operation per 10,000 inhabitants	Length in operation in 1920
1. Germany	62,734	540,800	66.146	11.6	9.5	58,041
2. Austria-Hungary	45,823	676,500	51.018	6.8	9.0	—
Czecho-Slovakia[1]	—	139,000	13.000	10.0	10.0	13,594
Austria	—	—	—	—	—	6,326
Hungary	—	—	—	—	—	7,052
Serb-Croat-Slovene State	—	26,400	12.436	—	—	8,955
3. Great Britain	37,678	314,000	45.472	12.0	8.3	39,262
4. France	50,232	536,400	39.252	9.4	12.8	—
5 Russia, including Finland	62,198	5,390,000	128.171	1.2	4.8	—
Finland	—	—	—	—	—	3,984
Lithuania	2,821	85,000	4.500	—	—	3,120
Esthonia	—	—	—	—	—	991
Latvia	—	74,316	2.950	—	—	2,849
Poland	—	—	—	—	—	15,829
6. Italy	17,420	286,600	34.270	6.1	5.1	20,118
7. Belgium	8,660	29,500	7.386	29.3	11.7	—
8. Luxemburg	525	2,600	246	20.2	21.3	—
9. Netherlands	3,194	33,100	5.825	9.6	5.5	—
10. Switzerland	4,818	41,400	3.559	11.6	13.5	5,345
11. Spain	15,350	496,900	18.618	3.1	8.2	—
12. Portugal	2,983	92,600	5.429	3.2	5.5	—
13. Denmark	3,771	38,500	2.589	9.8	14.6	4,334
14. Norway	3,092	322,300	2.350	1.0	13.2	3,286
15. Sweden	14,272	447,900	5.476	3.3	26.1	14,887
16. Serbia	936	48,300	2.821	1.9	3.3	—
17. Roumania	3,607	131,300	6.860	2.7	5.3	11,678
18. Greece	1,609	64,700	2.632	2.5	6.1	2,942
19. Bulgaria	1,928	96,300	4.253	2.0	4.5	2,549
20. Turkey in Europe	1,684	169,300	6.130	1.0	2.7	—
21. Jersey, Malta and Isle of Man	110	1,100	372	10.0	3.0	—
Total for Europe	342,624	9,760,100	438.875	3.5	7.8	—

[1] Names printed in italics denote those countries which were created by the treaties signed at the end of the war.

I.

RAILWAYS.

1. *State of Railway Communications before the War. — Organisation of International Transport.*

Before the recent war, Europe, and more especially Central and Western Europe, had enjoyed a long period of peace. This circumstance had given rise to an extensive development of railways—a development which was far more limited in Eastern Europe, as is shown in the preceding table—and had furthered the adoption of all measures calculated to increase the efficiency of transport. The effect of these measures was to eliminate the obstacles to freedom of trade presented by political and customs frontiers and the multiplicity of railway administration; thus they brought about an increase in the work performed by the railways, while the cost remained unchanged. In this respect it may be said that the railways of continental Europe, and, more especially, those of the central and western States, had arrived at an almost perfect system of internationalism, thanks to certain agreements concluded between the countries concerned, either on technical questions, or on the commercial relations established by the development of the railways.

The chief agreement of a technical nature is that regarding the "technical uniformity of railways" which resulted from successive conferences held at Berne from 1886 onwards, at the invitation of the Swiss Government, to which nearly all the European countries adhered (Switzerland, Germany, France, Austria-Hungary, Italy, Russia, Belgium, Sweden, Norway, Denmark, Bulgaria, the Netherlands, Roumania, Greece, Luxemburg and Serbia). At these conferences the essential dimensions of the track (gauge) and of all parts of the rolling-stock affected by this gauge were determined, together with the formation of trains, each State undertaking to enforce the adoption of these dimensions by law. The agreement was to be perpetual and the regulations were revised from time to time, either to bring them up to date, or to extend them. A final protocol, dated 1911, had effected a marked improvement in the previous regulations by authorising the introduction of an international type (*gabarit passe-partout*) and by approaching the solution of a technical problem, which is extremely important from an international point of view: that of the use of the continuous brake on goods trains.

Thus the almost unlimited exchange of rolling-stock belonging to the various administrations was made possible. It is generally known that the exchange of rolling-stock is a necessary condition for a through service *i.e.*, a service which, despite the existence of different managements, appears

to the public to be operated exactly as though under the control of a single managing body.

Only Spain and Russia (partially) did not adhere to the Convention on standard-gauge lines (1 m. 435) : they kept the broad gauge (1 m. 54) on their main lines. Further, in many countries narrow-gauge railways (1 m. and less) have been constructed on a large scale. But, if the narrow gauge is justified by the unimportance of the lines using it, a movement in favour of the abolition of the broad gauge is already apparent in the case of the main lines on which it had been adopted.

This principal technical agreement was followed by numerous subsidiary agreements ; it may also be added that the friendly diplomatic relations existing between the various countries had rendered the conclusion of agreements concerning international transport an extremely easy matter, and that instances of political and economic rivalry obstructing these schemes of public utility had been of relatively rare occurrence. With regard to passenger services, mention should also be made of the conferences on the subject of time-tables for the purpose of ensuring connections at the frontiers, and of the introduction of international trains made up alternatively, or without discrimination, of rolling-stock belonging to the railways concerned, which traversed several countries and enabled passengers to cover extremely long distances with the greatest speed and convenience, and at the lowest possible cost, without once changing carriages, and without delays for customs examinations — which were carried out in the carriages themselves. When, owing to the small amount of traffic, it was not expedient to form international trains, recourse was had to through carriages covering a previously determined route, which were shunted from one train to the other, thus making it necessary for passengers to change trains. The introduction of combined international tickets, of through tickets of connections, even when a sea-voyage intervened, completed the series of facilities in such a way that the international passenger traffic showed a marked and steady increase.

"Exchange Unions" had been set up for the transport of goods, which allowed the adhering States to use without discrimination rolling-stock corresponding to the uniform type, on condition, naturally, that the regulation concerning compensation for use was observed.

Further, convoyed train-services or series of trains run in connection with each other had been organised, which allowed the direct transport of perishable goods, consigned to distant destinations, without delay at the frontiers.

Together with the agreement for technical uniformity, mention should be made of the commercial agreement known as the "Berne International Convention on the Transport of Goods by Rail", concluded in 1886 at the invitation of Switzerland, and ratified on October 14th, 1890, as the result of a diplomatic arrangement between France, Germany, Austria-Hungary, Belgium, Italy, Luxemburg, the Netherlands and Switzerland. Special laws were passed in each of these countries to enforce observance of the Convention, to which Denmark, Bulgaria and Roumania later adhered.

This Convention was in reality a civil and commercial code governing

international transportation from territory to territory which was carried out by means of through way-bills, valid for the contracting States ; it laid down rules for combined services, the form and legal consequences of the transportation contract, the responsibility of the shippers in case of damage, loss or delay, the exercise of the right of compensation between the railways participating in the transportation, the extinction or prescription of legal proceedings, and jurisdiction in claims. With regard to customs formalities, it was decided that they should be carried out by the railway administration at the frontier concerned, acting as customs officials, on the basis of the declarations made by the consigner.

Many States had not been content with making the Berne International Convention compulsory. They had also applied its provisions to home transport, with a view to obtaining, in this complicated question, such uniformity of law as would promote the development of trade.

The execution of the Convention was placed in the hands of an international office, which had its seat at Berne and was intended to serve as an information centre, and as an intermediary and arbitrator in cases of litigation between the adhering railway systems and to facilitate financial relations between the various States ; one of its special duties was to investigate requests for revision of the Convention, and to arrange for the meeting of further conferences. As a matter of fact, the original text was amended and completed by various instruments : the declaration of September 20th, 1893, the agreement of July 16th, 1895, the Convention of June 16th, 1898, and that of September 19th, 1906. The office publishes an official organ every month known as the *Bulletin des transports internationaux par chemins de fer*.

The transport of goods was greatly facilitated by the existence of through services, *i.e.*, of agreements between the various countries for the establishment of tariffs applicable to international transport of specified origin and destination. Merchants might thus easily learn in advance, without making complicated calculations, the total cost of transport, even if it involved many railways in various countries.

Identical principles relating to the application of uniform tariffs, which were in nearly every case modelled on the Berne Convention, had also been applied not only to railways, but to road, river and ocean transport. Thus there were direct services between the railways and the Swiss posts (postes) and between the railways and the Italian and Swiss lakes, the Danube, etc., and between the Continent and England, etc. Germany, Austria-Hungary and Italy in particular had developed the combined railway and waterways service to a remarkable extent by means of agreements concluded between the various railway administrations and shipping concerns. These agreements proved remarkably useful for the development of European exports to the African colonies, Asia Minor and South America.

In view of the services which had unquestionably been rendered by the Convention on the Transport of Goods, an attempt had been made to conclude a similar agreement relating to passengers and luggage. This agreement, while not as important as the above Convention, was none the less calculated to facilitate the relations between the various countries.

Switzerland, which is extremely interested in promoting passenger traffic, again took the initial steps in the matter.

A draft Convention, drawn up by the central office, was communicated to the Governments concerned and received their careful consideration. As a result, German, Austrian, Hungarian, Belgian, Danish, French, Italian, Luxemburg, Norwegian, Dutch, Roumanian, Russian, Swedish and Swiss delegates met at a conference at Berne in May 1911. Their discussions led to a final draft convention (May 30th, 1911) on the transport of passengers and luggage, with through tickets or through luggage checks, not only on railways but, should occasion arise, by other means of transport by road, river or ocean.

The application of this Convention was interrupted by the war.

It need scarcely be added that, prior to these international conventions, railway agreements of all kinds had been concluded between the railway authorities of a single State or of States having a community of interests, of language, etc. In this connection, mention should be made of the Union of the German Railway Administrations *(Verein deutscher Eisenbahnverwaltungen)* established in 1850, which had unified the technical regulations regarding the construction and operation, the conditions of transport and the general tariff system for nearly all the railways of Germany, Austria-Hungary, Roumania and the Netherlands, *i.e.*, 80 railways forming a system of approximately 100,000 km. Nevertheless, from an international point of view, this agreement was merely a semi-official understanding, as its rules only constituted a moral obligation on the railway authorities and were independent of any Government intervention.

Although this does not profess to be an exhaustive report on the measures taken to facilitate international railway traffic, it should be remembered that special institutions administered the debit and credit accounts between the various railway managements. Owing to the reciprocal use of the means of communication and the loan of rolling-stock, these accounts were of an extremely complicated nature. This inconvenience was, however, tolerated, in view of the great and mutual advantages in the development of transport. Special joint offices for liquidation and control were set apart for the administration of these accounts, as, for example, the Hanover office for transport relations between Germany and Austria-Hungary, and the Szégédin office for relations between Austria-Hungary and Roumania, that of Munich for transport between Austria-Hungary, Germany and Italy, and that of Strasburg for Franco-German and Italo-German through transport *via* the St. Gothard, etc.

There were organisations similar to the above for liquidating the charges for the use of rolling-stock between countries belonging to the same "Exchange Unions." Thus the International Exchange Union includes the greater part of the French, Belgian, Dutch, Luxemburg, Swiss, German, Austro-Hungarian and Roumanian railways and the Russian Vienna-Warsaw standard-gauge line; this union, which has its central office at Magdeburg, was responsible for the enforcement of the "Regulations for the use of rolling-stock by railways belonging to the International Union." "The Union between the railways of central Europe, on the one

hand, and of Italy on the other" includes the Swiss, Austrian, Hungarian, German, Belgian, Dutch and Italian railways, and had offices at Strasburg and Magdeburg, where hire rates were liquidated in conformity with the "Regulations for the reciprocal use of rolling-stock, etc." Mention should also be made of the "Austro-Oriental Union" for the Austrian, Hungarian, Roumanian, Serbian, Bulgarian and Eastern Turkish railways, with offices at Budapest.

But this does not complete our survey. The prolonged peace had given rise to a belief in the stability of frontiers and had promoted the construction of plant to facilitate railway relations at the junction of the lines of one State with those of another in order that transport should be impeded as little as possible in crossing from one country to the other; thus, huge international stations had been erected which did not always correspond exactly to the frontiers, but which served as virtual customs and railway frontiers. They were furnished with all the equipment necessary for establishing communication between various railway administrations, but their operation was, as a rule, in the hands of a single administration which acted on behalf of the others.

Mention might also be made of railways crossing frontiers, constructed at the cost of several States. The obstacles arising from the complicated nature of the agreements involved were surmounted by the good will of the contracting countries.

Many engineering works bear witness to the effect of peace on the development of lines of communication; for example, the tunnels through the Alps, such as that of Mont Cenis, the cost of which was borne by Italy and France; the St. Gothard tunnel, for which Germany, Switzerland and Italy contributed, and the Simplon, which was the result of an agreement between Italy and Switzerland.

The Association of the International Congress of Railways, with offices at Brussels (now known as the International Association of Railways), has a membership of 254 railway companies, including those of the United States of America, and embraces a total system of approximately 300,000 km. Although very general in its aims, this association has contributed, indirectly doubtless, but appreciably, to technical unification. Germany only belonged to this association for the period 1905-1914.

Thus it may be said that before the war the railways had reached a state of development calculated to produce the most excellent results.

As a result of the war, this great system of agreements was swept away, and this largely accounts for the present crisis in international traffic.

The League of Nations has assumed the task of restoring pre-war conditions by means of already existing permanent organisations and general conferences between the States. It intends to improve them, when opportunity offers, by replacing the limited and fragmentary agreements by conventions, which will guarantee the observation of the fundamental provisions of the Covenant in an effective and permanent manner.

A final observation must be added to these general considerations. During the war, State railway operation was extended at the expense

of private enterprise. The serious difficulties arising out of the war even led certain companies to give up the lines they held under concessions. Changes of regime hastened repurchase ; the lines of conquered countries came into the hands of the new Governments. Apart from these facts, the war led to the concentration of management in the hands of a single directing body. In certain countries before the war the railways were operated by several companies.

We have not exact statistics at our disposal, but it may be asserted that at present there are few countries in Europe where private administration is clearly predominant. The only countries in this position are England, France and Spain. During the war, England and France centralised the railway service of the whole country to ensure unity of direction of all traffic, both military and civil. The satisfactory result of this unity of direction, from a technical point of view, gave rise to a movement in favour of general nationalisation of the railways in both countries, but experience has shown that State management is not conducive to economical working. For this reason, at the end of the war, the railways were restored to the companies and private operation resumed. It is not unlikely that similar considerations of economy will, in the future, induce the new States, which have enormous railway deficits, to adopt the same method when they reorganise their railways on a permanent basis.

2. *General Effects of the War on Communication by Rail.*

Tradition has it that war has a beneficial effect on means of communication.

The wars which led to the formation of the Roman Empire gave a considerable impetus to the construction of ordinary roads ; shipping developed at the time of the Crusades ; the incessant wars of the Napoleonic age were well calculated to promote the extension of communications ; lastly, the wars waged in the course of the twentieth century furthered the extension and development of railways.

As regards the world war of 1914-1918, favourable effects of the progress of motor traction and aerial transport may also be noted ; but, as far as can be seen at present, its effects were distinctly prejudicial to the railways.

This by no means contradicts the lessons of the past, which have just been mentioned. It is true that means of communication in their early stages of development can be improved by wars, of which they are an essential element ; on the other hand, in the case of an organisation which is already highly developed and efficient, the ruthless necessities of military operations can only have a harmful effect, due especially to their disorganising elements.

It is quite possible that a few lengths of railway line were built here and there for exclusively military purposes, but this unimportant increase

made no difference in the general state of development at which the railway systems had arrived in 1914. This development represented the sum of intensive building activities which had lasted, without interruption, for over three-quarters of a century. The military railways built in France by the Americans, those laid on the Russian frontiers by the Germans, and the connecting lines built by Italy on the Austrian frontier, together, make up a number of kilometres which would have seemed remarkable in the early stages of railway construction ; today they amount to a very small fraction of the lines laid in time of peace.

Thus, the useful effects are negligible ; the damage is very different in extent.

We already pointed out one of the regrettable consequences of the war when we noted the destruction of international organisations for increasing the efficiency of transport services by rendering them more rapid, certain and economical, and by freeing them from the obstacles raised by the existence of frontiers. These organisations will have to be entirely re-constituted. To this extremely serious harm must be added damage of a material nature. The chief item under this heading is the demolition carried out in the invaded areas.

The destruction of means of communication is a regrettable necessity in military operations and retreats ; but in the last war the extremely efficient technical preparations of certain of the belligerents enabled them to carry on a systematic work of destruction ; thus, the work of reconstruction has been rendered difficult, long, and costly. High explosives were used to tear up and destroy track ; all buildings and plant were razed to the ground ; not only were the arches and floors of bridges destroyed, but their piers and abutments were levelled to the very foundations ; even the permanent way was broken up ; locomotives and carriages were destroyed or carried off as booty. In those areas which were first invaded and then abandoned, it has been necessary to relay the lines completely ; as a rule this situation has been met by means of temporary works carried out with remarkable speed, and the final reconstruction, which will cover a fairly long period, has been postponed. In the meantime, railways in these areas will only be able to run limited services ; trains will have to be reduced in number and weight, and continue running at comparatively slow speeds.

To the systematic destruction carried out in the course of retreats — which was of an extremely serious nature — must be added the damage resulting from military operations strictly so-called. Artillery often selected as its objective railway junctions, large stations, bridges, and the openings of tunnels, in order to impede the movement of the enemy ; not only the occupied areas, but the areas adjacent to those where military operations were being carried on, suffered this damage, which was, however, far less than that caused by systematic destruction.

The damage caused by the war assumes extreme proportions in France, Belgium, Serbia, Hungary, Italy, Poland and the Baltic States, at any rate in areas which formed the theatre of military operations.

This direct material damage, although enormous, cannot be compared

in gravity with the indirect damage, if the general effects of the war on the means of communication can be so called. Railways are a military instrument of prime importance. In the last war particularly, they were extended up to the very field of battle, and their usefulness was apparent in the whole of the vast sphere of strategy and tactics. They brought all that was necessary for hostilities right up to the front : men, munitions and supplies. They carried back to the rear men who were wounded, or who were taking their turn in rest billets, or proceeding on leave. In the rear they were necessary for supplying material to industries which were producing munitions of war ; they sustained the economic life of the country, and assured its food supplies. It was inevitable that in keeping up this gigantic and unceasing effort for so many years, the railways should deteriorate through the excessive overtaxing of all their resources, and especially of their rolling-stock, the present shortage of which is one of the best-known and most striking features of the critical post-war situation.

The wear and tear of railway-stock must be attributed not so much to the intense use of it during the war (on certain systems the information available shows that war traffic exceeded peace traffic by 50 to 100 per cent.) as to the inability to carry out repairs. As the rolling-stock had been concentrated in the zone of operations, it was far distant from its usual place of assembly, where the workshops were situated. The latter, moreover, had been deprived of their oldest and most experienced workmen, who had been called to the colours ; they could not, therefore, carry out their normal work at a time when they should have been prepared to cope with an entirely exceptional situation.

Special mention should be made of the fact that, owing to the shortage of coal, engines were run on all sorts of fuel of inferior quality, and, as necessity arose, given to untrained drivers who had not completed the requisite period of apprenticeship.

Although the effects of the war are most evident in rolling-stock, it is none the less true that the equipment and plant also suffered from the abnormal conditions created by the war, if only in the matter of upkeep. The statements show clearly that, on certain lines, the speed of trains had to be reduced, because it was impossible to replace worn-out wooden sleepers. Further, in normal times, railway equipment is constantly being improved and augmented, and so enabled to meet the varying and growing requirements of transport ; as may be readily imagined, such improvements and additions were completely neglected during the war.

Without dwelling on this aspect of war damage, which it is easy to appreciate, we shall mention other causes of deterioration of a less obvious nature. Further, we shall have occasion to note that, while strictly material damages, such as the decrease in engines and carriages, the lack of repairs to plant, and others of a similar nature, may be made good at a more or less considerable financial sacrifice, this does not apply to the change in the direction of the currents of traffic, which is intimately connected with the political consequences of the war.

By altering the frontiers, the formation of new States gave rise to new situations even as regards the railways. The great changes in frontiers

have rendered international stations (frontier stations) useless, and have made it necessary to build new ones.

Now, as we have already had occasion to point out, international stations are complicated organisations, which generally require a long period of years for their complete development, for they must be provided not only with purely railway equipment, but also with accommodation for customs, for health inspection, for postal services and police, and must be subject to appropriate regulations. Thus, the abandonment of already existing international stations and the building of new ones forms a very heavy item of expenditure. In addition to this, the choice of the site of frontier stations requires lengthy negotiations between the countries concerned. A point actually situated on the frontier is seldom suitable for the erection of large buildings (the case of the Brenner Station, a small Alpine refuge on the new frontier between Austria and Italy, is a typical example). Thus a site has to be selected which is on one or other of the two territories, the political rivalries and complications which are inevitably brought into play in such a choice must be smoothed away, and complicated agreements for the mutual operation of the station, not only as regards railway administration but also in the matter of customs, postal service and police supervision, must be concluded. This involves considerable expenditure, which has to be divided between the countries concerned (and this division is in itself a difficulty) at the cost of much time and labour. Meantime all operations on the frontier are held up and international traffic seriously obstructed.

The number of international stations to be transferred is large. It will be sufficient if we mention that for Austria alone new agreements will have to be made for at least 15 stations of this type ; Hungary, which formerly required 14 international stations equipped with all the requisite buildings for its traffic, now has to employ 46, which lack the necessary plant, and the majority of which are not suited for the work imposed on them. Czecho-Slovakia requires 30 new international stations for its traffic with Austria and Hungary. It is, however, not necessary to add these figures together, as each State considers that the joint stations should belong to it ; but in any case there is extremely urgent work to be carried out, and no funds to do it with.

The greater railways had followed routes which corresponded to the economic policy of the countries they traversed rather than to local topographical and geographical conditions. Technical progress and the possibility of drawing on unlimited financial resources made it unnecessary to restrict the choice of routes. Thus it became a simple matter to transform these lines into a political instrument of prime importance by creating distinct currents of transport, even if this operation revealed the influence of considerations alien to natural economic conditions. The destruction of certain political organisations and the creation of others inevitably diverted the currents of traffic from their original channels. Thus the existing railways were likely to find themselves in the position of rivers suddenly deprived of the streams which feed them, while great masses of travellers and merchandise blocked lines which were not prepared to

carry them. The most characteristic manifestation of this phenomenon was in the part of Central Europe which had long been under the domination of the Austro-Hungarian Empire.

Austria's railway policy, as also that of Hungary, had a two-fold object : it attempted to consolidate the economic unity of the political aggregate by establishing commercial solidarity where national solidarity was lacking, and it aimed at keeping in a State of subjection countries which found the imperial yoke irksome and would easily have thrown it off had they been economically developed.

The criticism levelled at the Austrian railway system is that it gave almost exclusive preference to lines running from north to south, which fell in with the plan to foster relations between the regions of Bohemia, Moravia, Silesia and Galicia, rich in mining and agricultural products, with the almost completely non-productive Alpine districts. This arrangement did not allow all the districts of the empire to participate equally in national and international traffic.

Moreover, it should be pointed out that all the lines converged on the two capitals, so that traffic from the north through German ports, and from the south *via* Trieste, the sole maritime outlet of the Monarchy, always moved towards Vienna and Budapest, more especially Vienna, which had become one of the most notable centres of European commerce. But although this state of affairs might profit Vienna and Austria proper, it did harm to the other regions which, despite their long political connection, had preserved autonomous tendencies which were based on their very ethnic character and for that reason ineradicable.

Through communications from east to west were rare ; it is true that this is the direction of the great Danube waterway, but the requirements of modern transport are such that they can only be partially met by the use of waterways. Further, this means of communication did not exist in the northern countries of the Empire. It may thus be said that no attention was paid to the movement of transport from the countries of Western Europe to Russia or the Balkans.

The chief Austrian railways, although admirably planned to meet the requirements of an economic territory which had been created artificially and maintained by railway or customs facilities, have now lost their value by being cut up and incorporated in States with divergent aims.

Of the two main arteries running north, the Trieste-Vienna-Oderburg line includes an Italian section, a Serb-Croat-Slovene section, an Austrian section, a Czecho-Slovak section and a Polish section ; and the Verona-Ala-Kufstein line is divided into two sections of different nationality, with an altered frontier passing through a most unsuitable region, as was mentioned above. This also applies to the Marbourg-Franzenfeste line, used for transport between Hungary and the Balkans on the one hand and Southern Austria and Switzerland on the other, and now divided between three countries.

But as we have stated above, while Austria had devoted all her attention to lines running south or north from Vienna, the new States, which lie chiefly from east to west, prefer lines running in that direction. It remains

to be seen if and to what extent these tendencies correspond with natural conditions, which are really favourable to lines running from north to south, as these connect countries which differ in climate and production ; but there can be no doubt that, pending new organisation, the overthrow of the former organisation has increased the difficulties of trade. It is clear that it will require the consistent effort of many years to adapt the European railway system to the new political formations, especially as the work of reconstruction will of necessity be extremely slow. It is true that the newly formed States have many plans for building new railways to meet the requirements of the national policy adopted by each of these States, but the lack of financial resources, the scarcity of labour and the extremely high prices of all building materials will prevent the speedy realisation of these plans. We must, therefore, count on the effect of measures taken to utilise existing lines and plant in spite of difficulties, rather than on solutions which involve the complete construction of costly lines.

This disorganisation of transport is an extremely serious matter, and it is further aggravated by the exchange situation. If the differences in the exchanges are disastrous their fluctuations are even more so. The fluctuations deprive the railway tariffs of that stability which was their main advantage and which enabled the cost of transport to be previously calculated almost to a farthing, without fear of surprises. Such calculation is at present impossible. Whereas the pre-war organisation had almost entirely done away with middlemen and forwarding agents, these have now reappeared in great numbers ; they increase the transport charges by the cost of their services.

The abnormal condition of the exchanges also renders co-operation between the railway administrations of the various States a matter of difficulty. They can lay down no single rate, for serious differences in values are likely to occur. As no solution of the problem of the exchanges has yet been discovered, it is reasonable to think that, in this connection also, there will for a long time be great difficulty in restoring pre-war conditions in international relations.

We have thus, in our rapid review, brought out the main features of the results of the war on routes and transport. We shall now dwell on the various matters referred to in the questionnaire, and we propose to ascertain the more important general conclusions which may be drawn from the replies of the various States.

3. *Development and Situation of existing Lines.—Improvements and Extensions. — New Lines in Contemplation.*

All countries, although confronted by serious difficulties of every kind, have made vigorous efforts to repair their lines. They have pushed on the repair work, which was neglected during the war, and have relaid

the lines destroyed in the invaded districts. The reports show that this work of restoration has made remarkable progress. It may now be stated that all the lines existing before the war, together with the lines laid during the war, are once more open for traffic, subject to minor restrictions.

Naturally the situation differs in different countries. In Western Europe the reconstruction of the lines has made rapid progress, for the greater industrial development of these countries has provided them with ample resources. Moreover, the organisation of the States in this part of Europe underwent no important modification. The previous system of railway administration, which remained intact, was able, with comparative ease, to deal with the serious task now imposed upon it. Among the countries of Central Europe, only Italy and Czecho-Slovakia had to repair direct damage ; they are proceeding rapidly with this work under the same favourable conditions as prevail in the western countries. But the work of reconstruction is making slower progress in the countries of Eastern Europe, where the creation of new States destroyed a previous railway organisation which was still far from being perfect.

During the period immediately preceding the war the increase in the extent of the European railways amounted to a yearly average of about 1 to 2 %, but the increase varied considerably in different countries. Certain regions could be regarded as saturated with means of communication. This was the case, for example, with a great part of Western and Central Europe. Other regions, again, such as the Balkan countries (Serbia, Roumania, and in particular Bulgaria), were in the full ardour of their first railway development. It was natural that the war should put a stop to all construction for lines of a purely military character.

However, during the war, especially in countries which remained neutral, some lines which had already been begun were opened for raffic.

This was the case in Switzerland with the Frutigen-Brigue line (60 km.), the Jura line, between Moutier and Longeau (13 km.), the Sissach-Olten line (17 km.), the Brigue-Gletsch section (47 km.) of the Furka railway, the eastern section of which (Gletsch-Disentis), extending to the Rhone valley, has had to be postponed. All these lines are of international importance. At the time the Swiss statement was drawn up the second Simplon tunnel (20 km.) was being constructed. It has just been completed as we write. The Locarno-Camedo-Domodossola connection, a further link between the Swiss and Italian railways, is also under construction.

During the war Spain also extended her railway system. Several lines (Irun-Madrid, Barcelona-Gerona, Valencia-Jatiba) have been double-tracked. The Canfranc and Puigcerda lines are nearly completed. Plans for a line from Caminreal to Carinena have been approved ; this line will enable direct relations to be established from south to north between Valencia and France, *via* Canfranc ; the same is true of the projected line from Zamora to Orense, which is intended to give a speedier service between Madrid and Vigo.

The through Madrid-Valencia line has reached the stage of an approved scheme. The Noguera-Mallaresa and Ferrol-Gijon lines, which complete the line along the Cantabrian coast, are under construction. The inter-

national line crossing the whole of Spain from Alduides (Pyrenees) to Algeciras, *via* Madrid, is under consideration.

Sweden, Norway, Denmark and the Netherlands also took no part in the war. They call for no special remark. The same may be said of Luxemburg.

In Sweden, a country well supplied with railways in proportion to the population, the lines were maintained in good condition during the war, and a beginning was made with the laying of certain new lines (Ostersund-Gallevare, Forsmo-Hoting, Hallnas-Stensele, and the Sveg-Brunflo line, which is specially important, as it is to ensure communication between Western and Northern Sweden).

In Norway a line from Storen, on the Christiania-Trondhjem line to Dombaas, constituting a through route between Christiania and Trondhjem, *via* Hamar-Dombaas-Storen, will shortly be opened for traffic. Other narrow-gauge lines have been converted to standard gauge.

If we now turn to countries belonging to the Western European group which took part in the war, we observe that the English report makes no special reference to the condition of existing lines and plans for the laying of new lines. This circumstance is quite natural, for the United Kingdom was not the theatre of land operations, and in this connection everything proceeded in that country as in time of peace. The railways, moreover, are so highly developed there that no need for any considerable extension is felt.

The French report supplies us with no information as to the extent to which the railways were destroyed during the German occupation. We gather, however, from Parliamentary papers (Report of the Minister Claveille, dated March 13th, 1919, to the President of the Republic) that the actual length of track destroyed or damaged was 5,600 kilometres out of a total of 54,000 kilometres of line. 1,510 bridges, 12 tunnels, 590 buildings and 500 watertanks were destroyed or damaged. The construction and repair workshops at Hellemes, near Lille, were stripped of their machinery and equipment. The workshops at Tergnier, Lens, Amiens, Epernay, Roy and Mohon were rendered unserviceable, permanently or for a long period. All locomotive depôts in the zone occupied by the enemy were completely or partially destroyed, but the work of reconstruction has been pushed on with great rapidity. According to another report of M. Claveille, on July 1st, 1919, only a few kilometres of line had still to be completed. 1,650 kilometres of new line, 1,612 of which are standard gauge, were laid in France during the war, in addition to the work done on stations and engineering constructions.

As we have already pointed out, ambitious programmes for new construction have been considered in many countries, particularly in States recently created, or which have increased their territories as a result of the war.

France is putting forward proposals for new construction on a large scale. In that country the lines are divided into four classes: railways under construction, which are certain to be completed at an early date (1,567 kilometres); railways for which concessions have been granted to com-

panies or which have been declared public utilities, but on which work has not yet begun (598 kilometres) ; lines for which concessions have been granted to companies but which have not yet been declared public utilities (693 kilometres) ; projected lines favourably considered by the authorities. To form an idea of the extent of this programme, it is important to remember that its completion will involve a total expenditure of about 7 milliards of francs—an expenditure which, according to the estimates, will require to be spread over fifteen years, representing an amount of 450 millions yearly.

Among the most important lines in contemplation, we may mention the two lines crossing the Vosges from Saint-Maurice to Weserling, and from Saint-Dié to Saeles, which are intended to link up Epinal with Mulhausen and Strasburg ; the Lérouville-Thiancourt line, which will place Metz in direct communication with Bar-le-Duc ; and the Pont-Saint-Vincent-Blainville line, which will connect Toul to Blainville without the roundabout journey *via* Frouard and Nancy. All these lines are intended to improve communications with Alsace, which has been restored to the mother-country.

Moreover, in view of the special importance of the Bordeaux-Odessa route, along the 45th parallel, which is intended to ensure communication, without crossing the territories of Germany and Austria, between the Atlantic, France, Italy, the Serb-Croat-Slovene State and Roumania, with branch lines to Athens and Constantinople, a scheme has been set on foot for a Limoges-Saint-Germain-les-Fossés line to improve the service between Bordeaux and Lyons, and a Saint-Germain-les-Fossés-Paray-le-Monial line, which will provide better communication between Bordeaux and Mulhausen.

Mention may also be made of the line from Rouen to Havre, another crossing the Seine, intended to link up Havre with the the west, and the line from Nantes to Paimbœuf.

The Channel Tunnel must be included among important engineering works under consideration.

During the war, 1,100 kilometres of railway were completely destroyed, and 400 kilometres partially destroyed, in Belgium, not to mention 1,400 large and small engineering works, which must be rebuilt. The work of reconstruction was rapidly carried out, and on July 1st, 1920, the service was again in full working order, although, in addition to the relaying of the permanent way, it had been necessary to reopen 593 stations and halts which had not been used during the war, to make alterations in the main depôts, to remove 30,000 trucks loaded with ammunition, war material and booty which had been placed on the track for the purpose of impeding the resumption of the service, and to provide for the organisation of a temporary signalling system and the supply of plant for the workshops.

A few new lines were laid while this work was going on, and other lines were double-tracked.

The work which it is proposed to carry out includes the double-tracking of certain lines, while others are to be quadrupled.

In Central Europe, the railway system of Germany, as a result of territorial losses, has been reduced by 6,850 kilometres. Of this total 2,031 kilometres are represented by the Alsace-Lorraine system, and the

remainder by lines ceded to various States (Memel territory 137 km., Czecho-Slovakia 31 km., Belgium 153 km., Denmark 247 km., Poland 4,105 km., Free City of Danzig 146 km.—4,879 km. in all). No new undertakings are in contemplation. During the war, 1,223 kilometres of line were laid.

Owing to territorial losses, Austria at present owns only 6,626 kilometres of line. Only a few lines were directly affected by military operations, but the whole system is in a bad state of repair. Everything necessary has, however, been done to render the lines capable of meeting the requirements of traffic, though the work of repair was difficult owing to the fact that practically all the lines are mountain railways. Such repairs as were not absolutely essential for safety and all work for the purpose of increasing the capacity of the lines have naturally been postponed. It will be necessary to undertake a great deal of new work such as the building of frontier stations and the adaptation of the system to the new routes which traffic will take; but so far no definite schemes have been prepared. The new constructions under consideration have had to be postponed, and in view of the unsatisfactory position of Austrian finances it is impossible to say when they will be resumed.

Hungary, which, before the war, had a railway system of 19,600 kilometres, possesses at present only 7,052 kilometres of line as a result of the loss of part of her territory.

The work necessary to maintain the lines in good condition is in arrears, and in view of internal political difficulties it has not been possible to draw up a programme of new construction.

Czecho-Slovakia is one of the new States where the previously existing railways completely fail to meet the requirements of traffic. This country, which consists of Bohemia, Moravia, and Silesia in the west, and of Slovakia and Sub-Carpathian Russia in the east, is in the form of a trapezium elongated towards the east and west, and is provided with lines running from north to south, whereas it is of the utmost importance that it should own lines running from west to east, parallel to the longitudinal axis of the republic.

As regards international communication, Czecho-Slovakia would, for the reason previously mentioned, favour the opening of the Bordeaux-Paris-Prague-Warsaw and Prague-Bucharest-Black Sea routes.

In this country, as is the case in other new States which have been formed out of territories of previously existing States, a certain lack of uniformity in technical matters relating to railways may still be observed. For example, there are still main lines with heavy rails which are consequently suitable for heavy rolling-stock and express trains, and other lines on which only rolling stock of limited weight can be run and where it is necessary to reduce speed.

Czecho-Slovakia suffered seriously from the Bolshevik-Magyar invasion in the south-east of Slovakia, but, as has been pointed out, the damage was promptly repaired.

The National Assembly has already adopted a programme for reconstruction work and improvements on the railway system, the completion of which will cost 6 ½ milliards of crowns. The plan is to construct 15 new

lines of a total length of 558 kilometres and to double-track numerous existing lines.

The result of this scheme would be to open direct communications between the west and the east of the Republic by means of a new line passing though the centre of Slovakia, and it would adapt the system to the new routes and new economic requirements of the country.

In Italy the exigencies of the war led to the expenditure of much labour on existing lines and stations. Moreover, during the war the Montebelluna-Susegana line and the branch from that line to the Castelfranco-Montebelluna line were built. In addition, 150 kilometres of double track were laid. Signalling appliances were improved and increased.

The Italian railway system has had an addition of 1,027 kilometres, representing the lines in the Trentino and Julian-Venetia.

The damage done during the invasion has been completely made good.

The scheme for new lines includes the laying of about 800 kilometres of standard gauge, not to mention the numerous narrow-gauge railways now under construction in the south of the peninsula and in Sicily.

If we turn to Eastern Europe, we cannot fail to be impressed by the exceptional gravity of the railway situation in Poland. Throughout the whole territory of former Russian Poland the length of rail, in proportion to the area of the country, was far below what was necessary to meet the most elementary economic requirements. During the war the entire system was several times destroyed. The same remarks apply to former Austrian Poland ; there also the railways, already inadequate, were damaged during the war. The Bolshevik invasions completed the work of destruction.

A typical case is that of the Warsaw-Grodno-Vilna line, one of the principal lines in the country. As it was impossible to repair the viaduct over the Niemen valley near Grodno, which had been twice destroyed, this line was not used for a long time.

Further, the Polish system suffers from a radical defect in that the Russian Government, on strategical grounds, always opposed the linking-up of its system with the German and Austrian systems ; with only a few exceptions the lines of former Russian Poland stop short at points ten or more kilometres from the old frontier. Connecting lines have therefore to be laid, and, further, some 700 kilometres of the broader Russian gauge must be converted to standard gauge to make possible the interchange of rolling-stock with the railways of the rest of Europe.

The railways in Roumania were seriously damaged by aeroplane and Zeppelin bombardments. Moreover, when the national and the Russian armies retired, many railway engineering works were destroyed at the request of the Allied Powers. Further havoc was wrought during the invasions and during the occupation, which lasted more than two years. On his retreat the enemy completed the work of ruin by utterly destroying not only engineering works and buildings but even stock of every description, furniture, archives, etc. Arrangements have been made to reconstruct the system provisionally, for considerable time and an outlay estimated at three or four milliard gold lei at least will be required for its final reconstruction.

Roumania, by annexing Bessarabia, Bukovina and Transylvania, now owns the railways in these territories, but large portions of these railways, and especially of those in Bessarabia and Bukovina, were destroyed during hostilities, and are in need of extensive repairs.

Roumania in her report makes no mention of any plans for new construction.

The railways of Bulgaria, which was continuously at war for many years, with a single respite in 1912, are in bad condition, and it is as much as she can do to maintain a service of trains running at reduced speed (30 km. per hour).

It is still too soon to think of laying new lines, apart from a few narrow-gauge lines of purely local interest, and the Mzdra-Vidin standard-gauge line, which is already in operation as far as the Alexandrovo bridge, and of which a section, 30 km. in length, has still to be laid to Vidin, the work having been interrupted by the war.

At the close of the great war, Greece owned 1,149 km. of standard-gauge lines and 1,246 km. of narrow gauge lines. By the occupation of Thrace and the signature of the Treaty of Sèvres, 597 km. of standard-gauge track passed into the hands of the Greeks. The standard-gauge system has thus a length of 1,746 km., and the total length of line amounts to 2,992 km., 1,319 of which are standard-gauge and 865 narrow-gauge. 72 % of the total is operated by the State.

The Greek programme for new construction is on a fairly large scale and includes a Drama-Cavalla line in Macedonia (34 km.), a Salonica-Angistra line, also in Macedonia (134 km.), a Klabaka-Janina line (105 km.), a line from the Piræus to Janina and Valina (391 km.), and from Acheloos to Janina (227 km.), all standard-gauge lines, and, in addition, a number of narrow-gauge lines.

The Kingdom of the Serbs, Croats and Slovenes is described in its report as essentially a country for through traffic. Some of the great highways of international trade, both between the north and south and the east and west, will doubtless pass through its territory. There is a marked contrast between these aspirations and the actual inadequacy of the railways, which is to be ascribed, as has already been shown, to the fact that the Austro-Hungarian Empire aimed at making all railway lines run to Vienna and Budapest and at keeping the Serb, Croat and Slovene territories under its sway, without means of communication.

Austria's efforts were specially directed to keeping Serbia in a state of complete political isolation, and the latter, owing to her lack of capital and the special difficulties which the nature of the country places in the way of making new roads, was unable to escape from this isolation by her unaided resources.

The first railway in Serbia—that from Belgrade to Nish, about 250 km. in length—was opened for traffic in 1884, and this line, with an extension to Salonica and a branch to Constantinople, is the main artery of the country.

In the Serb-Croat-Slovene Kingdom there are 8,955 km. of lines, but as these lines are not linked up with each other, it may be said that,

though the new State is not without railways, it has not as yet any railway system strictly so-called.

The Belgrade-Nish-Salonica railway, which follows the Valley of Morava and then that of the Vardar and is not crossed by any line which might relieve it of part of its traffic, assumed exceptional strategical importance. For this reason it was used during the Austro-Hungarian, German and Bulgarian invasions and at the time of the final retreat it was systematically destroyed. A great deal of time will be required to reconstruct this line ; in the meantime it has been temporarily restored sufficiently to enable a train service at reduced speed (25 km. per hour).

The new undertakings which it is proposed to carry out, in addition to the complete reconstruction of the lines which were destroyed, must therefore aim at creating a real railway system in the Serb-Croat-Slovene Kingdom which will meet the actual needs of the country and serve to connect it with its allies. The railways which, according to the report, must be reconstructed to achieve this object are :

(1) The " Adriatic line ", from San Giovanni di Medina to Scutari, Nish, Prahovo and thence to Bukarest and Odessa, an earlier scheme, the most important section of which—that from Nish to Prahovo—had been completed as early as 1914.

(2) The lines forming part of the Atlantic-Black Sea route along the right bank of the Danube from Belgrade to Pozarevatz-Brza-Palanka (Serb-Bulgarian frontier), crossing the Danube at the latter station to connect with the Cracow-Bukarest-Odessa line.

(3) The Belgrade-Serajevo-Adriatic line (Neum Klek or Spalato).

For the purposes of this investigation we may include among new States the Baltic countries, omitting, however, Finland, whose report records no special change during the war, at least as regards communications and transport by rail. On the other hand, the reports dealing with Lithuania, Latvia and Esthonia are full of interesting details.

Lithuania, which has an area of about 85,000 sq. kms. (three times that of Belgium) and a population of 4,500,000, has 1,920 kms. of standard-gauge railway (299 of which were laid during the German occupation) and 1,200 kms. of narrow-gauge lines, part of which are not at present in operation. Some of these, such as the Kovno-Vilna line, which is a section of the Berlin-Petrograd line, the Vilna-Dvinsk line on the Vienna-Petrograd route, etc., are international lines.

During the battles between the Russian and German armies during the Great War and the retreat of the Polish troops after their last engagement with the Russian army, 30 %, of the stations were destroyed. Such stations as were not destroyed are in need of repair ; the bridges are temporary wooden structures, and are being rebuilt.

The plans for the future include, in addition to the work of reconstruction which we have mentioned above, the laying of new lines, among which may be mentioned the Memel-Telsiai-Chavli and the Kovno-Polonga standard-gauge lines, and 400 kms. of narrow-gauge line, and at the same

time the removal of lines which, laid for strategical purposes, are no longer of any economic importance.

As regards Latvia, the railway system there consists of 1,876 kms. of broad-gauge line (1,136 of which are Russian gauge) and 973 kms. of narrow-gauge lines of different dimensions.

The engineering works and buildings were largely destroyed during the war, so that the reconstruction of the system will entail heavy expenditure.

Plans for the future include the laying of new narrow-gauge lines.

Esthonia possesses 991 kms. of railway, 651 of which are Russian gauge (1 metre 524) and 340 are narrow gauge (0.75 metres). On these lines there are numerous bridges which were to a great extent destroyed during the war, including the bridge over the Narev, 141 metres in length.

New lines are at present being considered, such as, for example, a through line from Reval to Moscow, the concession for which has been granted to Esthonia under the Moscow Treaty, and another which, running from the extreme west of the Island of Oesel, will connect the towns of Pernau, Wiljandi and Tartu and have its terminus at Smolensk, and will thus form the most direct link between the Baltic on the one hand and the South of Russia, the Donetz Basin and the Caucasus on the other.

The new State is counting on the assistance of foreign capital for the construction of these lines.

Attention must be called to the fact that the shortage of coal experienced during the war gave a great impetus to the enquiry in many countries into the application of electric traction to railways.

France drew up a scheme to electrify 8,893 kms. of main line, the necessary power being derived from the Upper Dordogne and the Rhone.

In Spain the electrification of the Col de Pajeras line, which connects the Asturian system with the lines in the interior, will shortly be commenced.

In her report, Sweden supplies no information on this subject, although she has developed electric traction on her railways to a remarkable extent.

In Switzerland considerable progress has already been made in carrying out the plans for the gradual electrification of the whole system of the federal railways—*i.e.*, 2,881 km. of line. The necessary work has been completed and electric traction is employed on a section of the St. Gothard line, 91 km. in length, and on the Bern-Thun (32 km.), and Brigue-Sion (55 km.) lines. The development of the necessary hydraulic and electric power is a very heavy burden on the federal railways. The cost of installing the two central power-stations on the St. Gothard line is estimated at 50 million francs; the estimates for the Barberina power-station in Valais amounts to 37 million francs. At the end of 1920 the expenditure on power-stations, conduits and rolling-stock had already amounted to 146 millions; a further sum of 52 million was included in the 1921 budget.

Austria has also prepared electrification schemes. As a result of the new frontiers determined by the Treaty of St. Germain, the Austrian Republic has been deprived of rich coal-producing districts, so that she is now dependent on Germany for this form of fuel. The desire to find a

remedy for the very serious situation prevailing in the new State in this respect has led it to consider the question of substituting electric traction for steam traction by utilising the water-power of the country.

The Arlberg line was the first chosen for conversion ; the electrification of the Innsbruck-Salzburg line, the Schwarzach-Saint-Veit-Spittal-Lake Millstatt section of the Tauern line, and others, will follow shortly.

Italy, it may be said, occupies the leading position in the electrification of railways ; as early as June 30th, 1914, electric traction was employed on 300 km. of line ; on June 30th, 1920, this number had increased to 460. work was in progress on 200 km., and the complete plans provide fort he conversion of at least 6,000 km. of main line.

Latvia has also drawn up a scheme for electrifying her railways by employing the very considerable water-power at her disposal. The Dangava can supply 396,000 h.p. ; at Dole, near Riga, there is another fall of 65,000 h.p. and others again are found at Kegum, 85,000 h.p. ; at Ailazande, 36,000 h.p. ; Koknije 120,000 h.p. ; Aivnaja, 72,000 h.p. ; and Jebrabmeets 18,000 h.p.

But if electric traction is regarded by countries ill provided with coal as a remedy for the difficulties experienced in securing supplies of fuel, its technical advantages induce even countries which have coal at their disposal to adopt it. Such is the case, for example, in Great Britain. The English Minister of Transport intends, it is said, to encourage railway companies to employ part of their capital in electrifying their lines, particularly suburban lines. As experience has shown in a large number of countries, these lines may easily be electrified : traffic increases, and the capital thus invested brings in ample return. A commission of engineers is to investigate the means of solving the group of questions relating to the development of electric traction, especially from a point of view of the transfer of stock from one system to another and the employment of the same stock on different lines.

It is even believed that the electrification of railways will assist in solving the problem of removing the working population from the great congested urban centres.

4. *Rolling-Stock.—Traffic. Rates.—Fuel.—Financial position of the systems.*

As regards rolling-stock, we have already seen that in all belligerent countries traffic suffered from the excessive demands on the available means of transport. It will be well to call attention to a few special points.

Germany, owning an abundant supply of rolling-stock in excellent condition, was compelled, on account of the wide area over which hostilities were waged, to subject her stock to very heavy strain, while she had neither the time nor the means to undertake any but the most urgent repairs. The blockade imposed by the Allies deprived her of the most essential

raw material, so that she was compelled to use spare parts manufactured out of other material (iron boilers and fire boxes, metal chairs and insulators of poor quality). The use of this inferior material increased the repairs required. The locomotives had necessarily to use fuel of poor quality and deteriorated rapidly.

While repairs became more numerous and urgent, the output of the workers declined, especially in the case of factory hands. The German report lays special emphasis on this circumstance, which was common to all countries, and which is ascribed to the introduction of the eight-hour day, to the abolition of piece-work, to the employment of inexperienced mechanics and workmen to take the place of the experienced staff which had been called to the colours, and to the lack of foremen and consequently of supervision.

Political troubles, constant strikes and, in the case of Germany, the shortage of food during and immediately after the war, still further reduced the output of the workers.

Germany, however, points out that, as a result of the energetic action taken, the situation has improved and that last year piece-work was re-introduced.

It is difficult to estimate ia figures the difficulty caused by the absence of stock sent to the repair shops. But certainly the percentage of rolling-stock thus immobilised is greater now than before the war.

According to the Italian report, the percentage of temporarily unserviceable stock had increased, on June 30th, 1920, as compared with June 30th, 1914, by 11.3 % for locomotives, by 7.4 % for passenger coaches, by 2.7 % for luggage vans, and 5.6 % for trucks.

In Czecho-Slovakia, while before the war the locomotives laid up for repairs represented only 18 % of the total, they amounted at the time of the Armistice to 40 % ; these figures then fell to 37 % in 1919 and to 32 % in 1920. Passenger coaches undergoing repairs amounted to 33 % of the total stock at the beginning of 1919, to 14.4 % at the beginning of 1920 ; trucks requiring repair represented at the two periods mentioned 14 % and 7.8 % respectively.

In Hungary the percentage of locomotives laid up for repairs was 62 % in November 1920, and fell to 45 % in 1921 ; the percentage of passenger-coaches undergoing repairs was 26 % in 1920 and 27 % in 1921, though general conditions had everywhere slightly improved ; the percentage of trucks under repair fell from 27 % in 1920 to 17 % in 1921.

The percentage of locomotives thus immobilised is greater than that of other rolling-stock. This fact can easily be understood, as locomotives require greater care than ordinary rolling-stock to keep them in good working condition.

Switzerland, on the other hand, is in a special position. The falling-off in traffic has left her with a surplus of locomotives and passenger carriages, and she has been able to lease a certain number of locomotives to foreign railways. The number of trucks, however, is now inadequate, because in consequence of the scarcity of rolling-stock on foreign systems, the large quantities of goods imported into Switzerland through the Mediterranean

seaports have had for a long time to be carried exclusively on Swiss trucks. It therefore became urgently necessary to increase the number of Swiss goods trucks. The number of these trucks rose from 19,300 in 1913 to 25,000 in 1920.

Poland, Czecho-Slovakia, the Serb-Croat-Slovene State, succession States of the Austro-Hungarian Monarchy, together with the Austrian and Hungarian Republics themselves, lay special stress, in addition to the other difficulties which are common to all countries, on the inconvenience which they experience from the fact that the allocation of the rolling-stock which formerly belonged to the Austrian and Hungarian railways has not yet been carried out. (This allocation is to be effected by a special commission set up under Article 318 of the Treaty of St. Germain.) For this reason the countries referred to do not yet possess any rolling-stock which may be properly called their own, except such stock as they have built or acquired since the war. They have only a common pool of stock, which is very small in comparison with its previous dimensions. The locomotives and trucks sent into the zone of hostilities fell into the hands of the enemy, and in addition some of the trucks belonging to the common pool are immobilised in the country which temporarily holds them, and which is careful not to allow them to pass over its frontiers. The country which has suffered most from these circumstances is Czecho-Slovakia, which, as, above all, an exporting state, sends beyond her frontiers more trucks than she receives in return and only recovers empty trucks very slowly.

The pool of trucks should, according to the Czecho-Slovakian report, remain at the disposal of all the succession States ; and, indeed, each of these States, being in urgent need, has come to regard the stock in its territory as belonging to it or at least as intended in the first place to serve its own industry. Thus, as difficulties are placed in the way of returning empty trucks, exporting countries state that they are in an intolerable position ; on the one hand they are compelled to send their trucks over the frontier to avoid unemployment in their industries, and on the other hand they find their home traffic placed in jeopardy by the steady disappearance of trucks from their territory.

The prevailing uncertainty as to the ownership of stock leads, further, to neglect in its upkeep. Many trucks in need of repair obstruct the lines and remain unused. It is absolutely necessary not only to expedite the allocation, but to return to the former strict system of exchanging stock so that it will be easier to use it in common. The stock indeed is not insufficient in quantity, but it is somewhat worn out. This comparative shortage is the main cause of the transport crisis from which Central Europe is suffering.

Czecho-Slovakia has a fair number of large workshops ; she intends to build others, and will thus soon be in a position to deal with the situation. The Serb-Croat-Slovene report states that the amount of rolling-stock belonging to the country is unknown, but the quantity is certainly not great and the stock is in very bad condition. Moreover, as there are no workshops for the repair of carriages in the national territory, the Serb-Croat-Slovene State is compelled to have recourse to neighbouring countries,

which only carry out the orders after long delay and on very burdensome conditions.

Even the countries where railways are most highly developed and which suffered least from the war are experiencing the difficulties which arise from scarcity of rolling-stock. On June 30th, 1919, England had on her 16 principal railways 17,743 locomotives, or 1,186 fewer than at the end of 1913. These 16 railways had 650,606 carriages actually running on June 30th, 1919; that is, 45,315 fewer than on December 31st, 1913. This notable falling-off in the rolling-stock coincided with an increase in the volume of transport and the reduction in the working day. In England it gave rise to a congestion of traffic on a scale which was precisely similar to what occurred in all countries during the period immediately following the war. Naturally the difficulties involved in the reconstruction of stock were speedily overcome in highly developed industrial countries. But the crisis in connection with rolling-stock will last longer and be more difficult to surmount in countries whose resources are exhausted, especially in the countries of Eastern Europe, which are compelled to obtain locomotives and trucks from foreign countries.

The enquiry into the volume of goods traffic during and after the war should lead to a definite conclusion on the question whether, as many circumstances seem to show, the war, by giving an impetus to industrial activity and by promoting intercourse between the nations which were divided into two great alliances, has been responsible for an increased development of trade.

Unfortunately the great uncertainty which prevails on this subject cannot be dispelled by the figures given in the reports. The statistics dealing with the war period properly so called are of no great value in our enquiry. Transport, indeed, increased during this period, but the causes of the increase were essentially of a temporary nature, and a great deal of trade necessary in the conduct of the war for the supply of the civilian populations with food ceased at the Armistice or shortly after. As to the post-war period, it has been marked by such economic upheavals that all conclusions are rendered of little value by the special conditions in which the events occurred. We are dealing with dismembered groups of States, new countries under unstable political systems, regions in a state of anarchy, a vast empire completely isolated from the economic world, and monetary systems in a state of incredible disorder; all these factors have modified the previous situation and make it impossible to compare it with the present.

We are impressed among other things by the amazing instability of economic conditions. Immediately after the war there was a great increase in activity, but a crisis suddenly ensued which put a stop to this forward movement. Further, events have naturally taken different courses in neutral countries, conquering countries and conquered countries.

As has been very truly pointed out in certain reports, all this makes it impossible to form any very clear idea of the true position at present and the probable development of events in the near future.

It is not yet possible for us to arrive at any definite conclusions as to the development of transport since the war, and the influence which it has exerted on the volume of trade. Only at a later date, when the storm caused by this disaster, which is without precedent in history, has subsided, and a new order has been established, will it be possible to form a correct estimate of the results of the war on transport, which is, as it were, a synthesis of all human activity. The provisional conclusions which may be drawn from the following figures must, therefore, be accepted with all due reserve.

When we examine the subject matter of the reports we are impressed by the heterogeneous nature of the statistical information supplied by the various States. The units of measurement which ought to be applied to transport by rail are the passenger-kilometre and the ton-kilometre, which combine in one statement the whole idea of the traffic handled and the distance covered. It is, however, only in countries with a railway organisation of long standing and with a competent statistical service that it has been possible to produce these figures. For the other countries we must rest content with approximate estimates of transport, such as the distance covered by trains, the number of passengers carried, the nature of the goods shipped, and, in the last analysis, the receipts which would be derived from this traffic calculated at the same rates.

We may note further that new countries which have come into existence as a result of the dismemberment of their States possess no pre-war statistics regarding their territories, and that consequently it is impossible to institute a comparison with the present position; further, the new railway administrations, organised in troubled times unfavourable to systematic enquiry, are without the necessary means of carrying out investigations.

Thus, in spite of our best efforts it has not been possible to outline very clearly or draw any very precise conclusions from the general account of the development of transport since the war.

If we begin with Western Europe we note that in England the total number of passengers carried in 1919 by the sixteen principal railway companies was 974,000,000, or an increase of 19 % as compared with 1913.

The receipts from the carriage of goods rose in 1919 to £5,000,000—an increase of 7 % as compared with 1913, basing the calculations on the tariffs then in force; but this percentage rose to 20 if the transport effected on behalf of the Government is taken into account. The nature of the traffic, however, has slightly changed; on the one hand long-distance consignments have increased, and on the other, goods previously carried by coasting vessels have been absorbed by the railways.

Belgium calls attention to the fact that, out of an average of 31 passenger trains running daily on her railway system, only 18 were running in 1921. The conclusion must not be drawn that the number of passengers has declined in the same proportion; as a matter of fact the number of passengers, which fell from about 204,000 in 1913 to 102,000 in 1919, rose to 80,000 for the first five months of 1920. In July 1914 the number of international trains passing through Belgian territory was 60. In March

1921 only 35 of these had been restored, with shorter routes and fewer passengers.

Quite apart from the war period strictly so-called, it is clear that the mere fact of strained international relations must, in the case of a transit country like Belgium, inevitably react on passenger traffic, but everything seems to point to the fact that the situation will soon become normal again.

In 1913 the volume of goods traffic was on an average 30 trains per day for the whole system ; in January 1921 the number of goods trains was only 20. These facts represent an actual decline in the carriage of goods. While before the war 20,000 trucks per day were in use, in 1919 and 1920 the figures fluctuated between a minimum of 10,000 and a maximum of 18,000. In 1921 the industrial crisis reduced the number to 15,000 ; goods carried amounted to about 5,500,000 tons in 1914, they fell to 700,000 immediately after the armistice, and rose to 4,000,000 tons in 1920.

In Luxemburg, which is also essentially a country for transit traffic, the number of passengers fell from 8,000,000 in 1913 to 5,500,000 in 1920, and goods from 8,000,000 tons in 1913 to 4,000,000 in 1920.

In France the distances covered by passenger trains over the whole of her railway systems declined from 246,000,000 kilometres in 1914 to 128,000,000 in 1920, and the distance covered by goods trains from 154,000,000 to 134,000,000. The number of passengers decreased from 541 to 527 millions ; but as the result of the increase in the average distance, a total of 22 milliards passenger-kilometres was reached in 1920, as against 19 milliards in 1913. On the other hand the transport of goods declined from 51,925 million ton-kilometres to 48,700 million.

It will be at once noticed—and later figures will confirm the truth of this general statement—that the war led to a fuller employment of trains. The load was increased and the speed reduced with a resulting increase in the traffic unit both for passengers and for goods. These are signs of more economical working. It may, therefore, reasonably be predicted that when economic equilibrium has been restored these factors may contribute to counteract the effects of the general rise in prices on railway rates. All the reservations we have made as to the conclusions to be drawn from a study of the present situation apply to this forecast.

In the case of Spain, a fairly large increase in the annual number of travellers carried is to be noted. The number rose from 50,000,000 before the war to 84,000,000 in 1920. With regard to goods, the figures rose from 29,000,000 tons to 35,000,000 tons. The reason for this increase is clear : Spain was a country poorly developed as regards railways, and her trade was not only never interrupted but was actually improved and increased by the war.

In Central Europe, Sweden supplies no comparative statistics, but there is good reason to believe that their traffic developed to a marked degree, especially as regards the export of ores.

Between 1914 and 1919 Norway records an increase of 56 % in the number of passengers, and 19 % in the tonnage of goods. In Denmark,

traffic also developed to a remarkable extent between 1913 and 1920. The number of passengers rose from 23,000,000 to 31,000,000 per year, and goods from 6 to 8 million tons.

As regards traffic, Switzerland did not enjoy the same favourable conditions as other neutral countries. In May 1914—the date of the opening of the National Swiss Exhibition—the time-tables showed a large number of trains. Passenger traffic, which had steadily developed up to that period, was interrupted by the declaration of war ; the mobilisation of the army led to a reduction in the number of trains available for the civilian population, and when circumstances would have permitted an improvement in traffic conditions, the shortage of coal was an obstacle. Passenger traffic through the country, or coming from abroad, came to a complete stop. On certain lines, such as the Simplon line, traffic ultimately fell to 2 % of the normal figures.

Since the restoration of peace, passenger traffic, which is of such great importance to Switzerland, has continued gradually to improve. As is pointed out in the report, however, there are still certain obstacles in the way of the resumption of normal traffic. These obstacles are connected with the difficulties arising from the issue of passports, customs formalities, the unsatisfactory economic position of travellers from certain countries, the great increase in fares, and the fact that former political and economic relations between the various countries have not yet been fully restored.

In spite of these difficulties the number of passengers, which had fallen, from 128,000,000 in 1913 to 103,000,000 in 1918, rose to 114,000,000 in 1919. The amount of goods carried remained practically stationary, but the nature of the traffic underwent a change. Imports increased as compared with exports ; moreover, like all countries without an outlet to the sea, Switzerland has experienced rather serious difficulties in securing supplies.

Train traffic in Germany diminished in 1920.

In Germany rail traffic decreased by 35 % as compared with 1913. These figures apply to the Prussian and Hessian railways, but the report states that it may reasonably be taken as representing the position of the whole German railway system. The railways are short of resources, and traffic has fallen off as a result of the gravity of the economic situation. The report gives no further details on this question.

In January 1921 the distance covered by passenger trains in Austria was only 34 % of the pre-war figures. Between 1919 and 1920 the transport of goods declined, but no precise figures have been given. On the outbreak of war, passenger-trains on the Government railways in Hungary covered 181,000 kilometres daily. During the war these figures declined to an amazing extent, and fell almost to zero during the revolutions. A return is gradually being made to former conditions, and in 1921 the distance covered daily was 20,000 kilometres, or rather more than 10 % of the pre-war distance.

There is a considerable volume of passenger traffic in Czecho-Slovakia (113,000,000 persons were carried in 1919, as against 153,000,000 for the whole Austrian system in 1913), but no detailed particulars are supplied which will enable us to determine to what extent traffic has increased

within its territory since the war. It would, moreover, be difficult to provide such information, as Czecho-Slovakia is a new State which possesses no statistics of its own for the pre-war period. As regards goods, the quantities carried in Czecho-Slovakia amounted to 33,000,000 tons in 1919, as against approximately 36,000,000 tons in 1913 for the whole Austrian system.

The statistics with regard to transport in Poland do not permit of any comparison being made with the pre-war period. The same statement may be made as regards Roumania, Finland, Esthonia, Lithuania and Latvia.

In the Serb-Croat-Slovene Kingdom 445 trains were running daily before the war ; this number was reduced by more than half in 1920 (206) ; statistics regarding the number of travellers and the amount of freight are lacking.

In Bulgaria the number of trains was 39,678 in 1911 and 41,245 in 1919-1920. The number of passengers carried, which in 1911 had been 3½ millions, rose to about 5 millions in 1920. Goods, on the other hand, declined from 2,000,000 tons to 934,000.

The Greek statistics do not give figures for the Macedonian railways. Comparative tables with regard to Greek railways strictly so-called reveal the fact that the distance covered by rolling-stock in 1919 shows, as compared with 1914, an increase of 66 % for standard-gauge lines, and a decline of 13 % for narrow-gauge lines.

Passenger traffic in 1919 was greater than in 1914 by 14 % on standard-gauge lines and 11 % on narrow-gauge lines. Goods traffic by slow trains was 9 % greater on standard-gauge lines and 1 % greater on narrow-gauge lines.

The slow goods traffic was 9 % greater on the standard-gauge lines and 1 % greater on narrow-gauge lines.

In conclusion, it may be said, subject to all the reservations necessary in the case of such deductions, that in countries in which the former economic organisation has not been destroyed, or which have regained economic stability, or are on the point of doing so, traffic has increased ; in all other countries it has decreased, and some time will certainly elapse before it will resume its former proportions.

XLIX.

It was necessary to undertake a special enquiry as to the amount and price of the fuel available, for one of the features of the transport crisis during and after the war was precisely the scarcity of fuel for railways.

Even in England, which supplied half Europe with coal, prices increased fourfold. Large coal for locomotives, which was quoted in 1918 at 20s. 2d. f.o.b. rose to 80s. in December 1920. Prices, as is generally known, have fallen considerably since that date. The railways of the United Kingdom consumed before the war 13,000,000 tons yearly—a consumption which remained practically constant.

In France the railways in 1913 consumed 8 million tons at an average price of 22 fcs. In 1920 the consumption was rather higher : 9 million tons, and the price rose to 238 fcs. per ton. The fuel consumed in 1920 came from Germany (Ruhr and Saar), England, America, and the French mines themselves.

In Luxemburg, Saar coal before the war cost 20 fcs. per ton ; in 1920 the price rose to 100 fcs.

In Spain, coal costs from 90 to 125 pesetas per ton.

Sweden used foreign coal only to a very slight extent, and this coal cost on an average in 1914, 16 crowns per ton.

Norway also imports English coal ; while she paid 20 crowns for it in 1914, she paid prices varying from 90 to 136 crowns from 1918 to 1921.

In Denmark, prices rose from 20 to 121 crowns.

Up to 1918, Switzerland drew her supplies of coal almost exclusively from Germany, as before the war, but towards the close of 1918 Germany discontinued her supplies and recourse had to be had to Belgium, America and England ; in 1920 almost all the coal consumed came from America.

The average price per ton, which was 27 fcs. in 1913, rose to 190 fcs. in 1920. The situation subsequently improved.

The railways of the Austrian Empire were in a position to obtain the greater part of the fuel required within the country itself ; the State railways, for example, bought 84 % of their annual supply from mines within the country, and imported the remaining 16 % from England and Upper Silesia. As these supplies were obtained under contracts, it was possible to check the quality, and thus good coal was obtained.

As such measures cannot be adopted at the present time, the quality is inferior and the consumption is greater, thus, while 2,500,000 tons were sufficient before the war for haulage on all the lines of Austria, within her present limits 3,750,000 tons are now necessary for the same work.

After the dismemberment of former Austria, her supply of coal was seriously imperilled as a result of the loss of productive areas, and these difficulties were more serious as communication with foreign coalfields, particularly Czecho-Slovakia, Germany and Poland, were at this period completely interrupted. In consequence of negotiations, especially with Czecho-Slovakia and Germany, the supply of coal has improved to some extent.

The price of coal from the mines of the country varied before the war from 13 to 17 crowns per ton ; after the war the price of Czecho-Slovak lignite rose to 135 Czecho-Slovak crowns per ton ; Ostran coal to 424 crowns ; Upper-Silesian coal to 304 marks ; native Traunthal coal to 917 Austrian crowns ; and Graz-Flach lignite to 889 Austrian crowns.

The scarcity and high price of coal are one reason why Austria limits the number of trains running on her lines.

In peace-time Hungary extracted from mines within her own territory 76 % of the coal which she required ; the remainder was obtained abroad, particularly in Prussian Silesia. The amount which she requires at present is 141,000 tons per month ; the position at the time when her report was

drawn up was such that her requirements were not completely met. The report supplies no information as to prices, but they cannot differ greatly from Austrian prices.

Germany, which is a coal-producing country, states that she also is suffering from a shortage of fuel, owing to the supplies which she is bound to deliver. This growing scarcity of fuel is accompanied by a steady decline in quality.

As an example of the scarcity of fuel, the report points out that the railways, which in 1914 held a stock for 95 days, later held only enough for nine days or even five days.

The use of coal of poor quality damages the locomotives and leads to an increase in consumption. In 1914 the consumption of the German railways per locomotive-kilometre slightly exceeded 14 kilogrammes; in 1919 the consumption for the same unit rose to 21 kilogrammes and even at a later date to 50 kilogrammes (it is probable, however, that the load drawn by the locomotives increased also).

In 1913 Germany consumed 16,000,000 tons of coal, including some lignite, which cost 13.20 marks per ton, excluding freight. The total consumption has fallen off slightly (consumption per unit has increased while the number of trains has diminished), but the price rose to 254 marks excluding freight. 17 % of the coal used is obtained from the Ruhr basins, 21 % from Upper Silesia and the remainder from Lower Silesia, Saxony, and other mining areas.

The Italian railways consumed, before the war, about 2,200,000 tons of English coal of high quality from the Cardiff and Newport coalfields; but during the war it was necessary to resort to coal of all kinds, with the result that the total consumption in 1920 rose to 3,400,000 tons, including a small quantity (108,000 tons) of native lignite.

English coal of good quality cost in 1914, including freight, 36.33 lire per ton; in 1919 the average price rose to 397 lire; it reached a maximum of 695 lire in November 1920. Certain subsidiary Italian systems paid for English coal as much as 800 lire per ton, c. i. f. Genoa or other Italian ports.

It should be pointed out again that in 1921 the price of coal fell considerably.

The Czecho-Slovak railways required in 1920 1,000,000 tons of coal and 3½ million tons of lignite. Consumption per unit has increased by about 50 %, chiefly as a result of the poor quality of the coal used.

Before the war, local industries, especially in Bohemia and Moravia, drew their coal largely from Prussian Silesia. As the amount of Silesian coal has considerably declined, it has become necessary to allocate to these industries, which as a rule cannot use coal of inferior quality, native coal of high quality; thus nothing but native coal of poor quality remains for use in locomotives, and on that account the engines are being damaged. Two-thirds of the quantity consumed are supplied by the lignite fields of Northern Bohemia and the remainder by the Ostrava-Kervin Basin (Teschen country), by the Falknow Basin (North-West Bohemia) and by other smaller fields in the country.

Pre-war prices were 5 crowns for lignite and 14 crowns for anthracite, but in 1919 prices had risen to 52 Czecho-Slovak crowns for lignite and 115 for anthracite, and in 1920 to 160 and 380 crowns.

Turning to Eastern Europe we note that the results of the shortage of coal are still more striking.

Before the war the Polish railways drew their supplies of coal from Upper Silesia ; for reasons which are easily understood, deliveries from Upper Silesia have since the war been very irregular.

In Poland, as in the whole of Eastern Europe, wood is largely used as fuel for locomotives. The consumption thus amounts to 140,000 cubic metres of wood per month, in addition to 300,000 tons of coal. The report gives no information as to prices.

As the Serbian mines were burned or destroyed during the war, the Serb-Croat-Slovene Kingdom is without this source of supply ; it now obtains its supplies from the mines of Bohemia and Herzegovina (Krek and Onica, Zgosca-Breza and Mostar).

The annual consumption on the Serb-Croat-Slovene railways is about 250,000 tons. The price per ton, which before the war was about 10 dinars, is now 120 dinars.

Before the war Roumania consumed only 86,000 tons of coal, which cost her 37 lei per ton, but she used 220,000 tons of lignite at 15 lei, 235,000 cubic metres of wood at 9 lei, and 176 tons of petroleum. She consumes to-day 198,000 tons of lignite, costing from 116 to 212 lei ; 5,000 tons of coal at 356 to 426 lei ; 118,000 tons of petroleum at 500 lei, and about 2,000,000 cubic metres of wood at 100 lei. This consumption is likely to increase as traffic is restored.

During 1920 the total consumption of coal on the railways in Bulgaria amounted to 333,000 tons, all the supply being drawn from the State mines at Fernik. The price, which was 80 to 100 leva, has now risen to 120 leva per ton.

Greece uses English coal. In 1914, 11,000 tons, costing 37 drachmœ per ton, were consumed on the standard-gauge lines.

In 1919 the consumption rose to 37,429 tons, including 2,400 tons of native lignite and 1,000 tons of wood. The fuel used in 1919 was obtained from various sources, and the average price was 270 dr. for coal, 140 for lignite and 72 for wood. The consumption per unit increased.

Among Baltic countries Esthonia points out that in 1920 she encountered serious difficulties in obtaining supplies of fuel. For that reason she was compelled to resort to wood during a great part of the year and she has begun to use native coal, beds of which are being worked by the railway administration itself.

Lithuania is also experiencing difficulty in securing the small quantity of coal which she requires (120 to 140 thousand tons per year) and must therefore have recourse to wood. The same conditions prevail in Latvia, but to conserve her forests she intends, as has been shown already, to develop electric traction.

The conclusions which we feel entitled to draw from the above facts relating to fuel are optimistic in the sense that the coal crisis on the railways, which was a direct result of the state of war, is already over. Exports

have been resumed, and henceforward no country need be without a quantity of fuel adequate for her needs.

Prices remain high as compared with pre-war figures, but this circumstance is to be explained chiefly by the depreciation of money.

The essential causes of the increase, reckoned on a gold basis, are the same as those of the general rise in prices, and are closely connected with labour conditions.

A comparison of the present prices in the various countries would be meaningless, as these prices are shown in different currencies which have depreciated in varying degrees.

We have already mentioned another conclusion of a general nature. The consumption of fuel per train-kilometre has greatly increased. This increase is due to two causes : one, which is of a temporary nature, is the poor quality of the coal used ; the other, which, it may be predicted, will prove permanent, is connected with the development of a characteristic feature in the technical progress of the railways, which has received considerable impetus from the necessities of the war: the increase in the weight of trains.

In Europe, before the war, as a result of the abundant supply of labour and the facilities for obtaining supplies of coal, it was possible to work the railways with a large number of trains and small loads. On the other hand, in America, where more powerful engines were used, it was the practice to concentrate traffic in heavy trains. Experience has shown that the latter system is preferable from the point of view of the cost of working ; the crisis of the war, as we have already stated, encouraged this tendency, which will very likely prove permanent.

We may also mention the example set by the Americans in France, where they operated the lines giving access to their ports of disembarkation according to their own methods. The increase in the weight of goods trains may therefore be regarded as one of the valuable results of the war ; this increase tends to reach the same proportions as in America ; it leads to reduction in freight rates, but involves the introduction of the technical improvement to which we have already referred. This improvement, which was under consideration before the war, began with the use of the continuous brake on goods trains inaugurated during the war by Germany when she adopted the Kunze-Knorr system. If this system should not be accepted by the States Members of the League of Nations, Germany, under Article 370 of the Treaty of Versailles, would be obliged to alter it, for the type of brake for goods trains is essentially an international question on account of the constant exchange of rolling-stock between different systems and different countries. In any case this is a question which must be settled at an early date.

Germany makes no reference to this innovation in her report. Sweden alone has stated that she was about to equip her goods trucks with the Kunze-Knorr continuous brake which was selected by Germany.

In all countries without exception, railway tariffs increased considerably during the war and even more during the period immediately following it. During the long period of peace which preceded the war, a

general and constant tendency to reduce railway tarifs had become apparent. Generally speaking, this reduction did not apply to transport of all kinds ; only certain classes of goods had the benefit of reduced tariffs, which, while lowering the average level of prices, largely developed traffic. Reduced fares led to an increase in passenger traffic, and special tariff regulations applying only to classes of goods with possibilities of development improved conditions in goods traffic. This tendency was the expression of a sound economic idea, beneficial alike to the public and to the railways. The latter, indeed, as a result of the increase of freights, which were not very remunerative but easily handled, compensated for the increase in their general expenses. If, moreover, general expenditure increased on account of the inevitable development of plant and the increasing complexity of the administration, gross expenditure, on the other hand, diminished as a result of the constant progress made in technical matters which permitted the employment of more powerful and more economical engines, trucks of large capacity, and, in general, of improved equipment.

This tendency towards reduced tariffs was encouraged by the fact that the working of the railways was gradually passing under the control of Governments which were more inclined to make experiments in reducing tariffs even without knowing beforehand what the result would be. Keen competition of producing countries in the world's markets was the impetus for an attempt to overcome the obstacle presented by customs duties by means of reduced freight rates. Briefly, dumping was always a decisive factor even in railway rates. The economic upheaval caused by the war not only checked these tendencies but brought about a movement in the opposite direction, and led to an enormous rise in the cost of transport. We are of opinion that it would be interesting to estimate the extent of these increases in rates. The questionnaire has supplied us with the figures which we shall classify and summarise below. But at the outset it must be noted that these statistics are of comparatively small value in the matter of railway tariffs. As a result of the differentiating measures to which we have alluded, these tariffs have become so complicated that they invariably include a large number of rates for different classes of goods or passengers or different kinds of transport (through trains or omnibus, slow or fast trains, complete truck-loads or small consignments), and vary according to the competition between different companies and between railways and other means of transport.

As a general rule, the increase in tariffs manifests itself first in the abolition of existing facilities (return tickets, circular tickets, season tickets, etc.), and in higher rates for Sunday tickets and increased State taxes.

The next step has been a systematic increase in rates, strictly so-called—*i.e.*, all rates were raised according to complicated rules—that is to say, by applying different rates according to the distance and the method of transport.

As a general rule the proportion of increase was lower for cheaper forms of transport, the increase in the cost of third-class tickets being less than for first- and second-class tickets.

In certain countries the increase in the freight rates was less in the case of goods where the rise in prices had been greatest, such as fuel or essential articles such as food-stuffs. What we have said is enough to show that the variations in tariffs can only be determined by reference to averages or to particular cases, but no matter which method is employed, the information thus obtained does not give an accurate explanation of the facts, for in order to form a correct idea of the subject as a whole, it would be necessary to make a comparison of the various classes of transport considered separately.

As will be seen, the rates of increase vary in different countries and are naturally much greater in countries with a depreciated currency than in those where the currency has remained sound. But these differences are for the most part only apparent, since in a country where the currency has remained stable an increase of 10 % would be exactly equivalent to an increase of 100 % in a country where the currency, during the same period, had depreciated to a tenth of its value.

To sum up, it may be stated that a real increase in the cost of operating railways has occurred in all countries as a result of the adoption of the eight-hour day, the falling off in the discipline of the personnel, the scarcity of the materials employed on the railways — all of which causes have contributed in almost the same proportion to the rise in working expenses. Moreover, the difference in the amount of the rise depends on the attendant variations in the monetary unit in which the rise is expressed.

All such increases, which are the result in different countries of a whole series of badly co-ordinated and, occasionally, overlapping measures, render any investigation of the question difficult.

It may further be noted that a certain lapse of time always occurs between the appearance of the causes leading to a rise in prices and the increase in tariffs. It is natural, indeed, that Governments should feel unwilling, where the railways are worked by the State, to adopt, or, where they are worked by private companies, to sanction, increases in tariffs which, they have reason to fear, will react on the cost price of the necessaries of life. This delay in raising rates has gravely imperilled the financial position of the companies. For this reason their balance-sheets show large deficits which would have been wholly or partly obviated if tariffs had at once been raised to meet the costs of working.

The English report points out, without any comment, that an increase of 75 % in the case of passenger traffic and of about 112 % in the case of goods traffic has been made in pre-war rates in England.

It is desirable to compare these figures with those of another country whose currency has remained practically at its pre-war value: Switzerland. The Swiss report shows that, apart from the abolition of all tickets at reduced rates, which was adopted about the end of 1915, the last rise in tariffs, dating from August 1, 1920, brought the increase up to 55 % for 1st and 2nd class single tickets and 45 % for 3rd class tickets.

Goods rates have been raised several times since August 1st, 1920; the total increase represents an advance of 40 % on the pre-war tariff.

An additional burden was the abolition of most of the special rates.

Finally, the Swiss tariffs were amended on the principle of applying varying rates according to the distance, with a view to securing favourable conditions for long-distance transport.

The Swiss report points out that experience has shown the necessity of putting a stop to increases in rates, for there are already signs of a falling, off in the volume of traffic. Further, the increase in railway rates favours motor competition over short distances.

From the above considerations it appears that the increases introduced in the two European countries whose exchange stands highest are practically the same.

In Spain, which is another country with a high rate of exchange, the rate of increase in tariffs, both for passengers and for goods, is 15 %, but further increases may have been adopted since the date of the report.

In France, passenger rates, including taxes, have risen 80 % for 3rd class, 84 % for 2nd class and about 89 % for 1st class. On an average, freight rates have been raised 275 %. The increase is greater for valuable goods than for goods of small value and foodstuffs.

In Belgium, the passenger rates at present in force show, as compared with pre-war figures, a rise of 120 %, the effect of two separate increases. The increases which have been applied to goods vary from a maximum of 260 % to a minimum of 150 %, according to the kind of transport and the class of goods.

In Sweden, increases in passenger rates are made on a varying scale and give a preference to long-distance journeys and 3rd class traffic ; the rate thus varies from a maximum of 300 % 1st class for short distances to a minimum of 119 % 3rd class. Increases varying from 500 % for small packages over short distances and 204 % for truckloads over a long distance have also been introduced.

In Norway, passenger rates have been increased 380 % 1st class and 140 % 3rd class. The rate of increase for goods is 160 %.

In Denmark, the increase in the rates for passengers is 100 % and for goods 200 %.

As every neutral country has felt the effects of the war, none has escaped this special effect on tariffs, and only the greater or lesser depreciation of the currency has varied the rate of increase.

When we pass to Germany, we note that the rates of increase rise considerably. First-class tickets which before the war cost 7 pfennig per kilometre now cost 58.5 pfennig, and 4th class tickets have risen from 2 to 13 pf. The increases in goods rates amount to 900 %, the result being that freights at present cost ten times what they did in 1914. Moreover, further increases may have been decided on since the date when this report was drawn up (June 1921).

In Austria, the increase on passenger rates varies from a minimum of 929 % (3rd class omnibus trains) to a maximum of 1718 % (1st class through trains) ; freights, which have been raised on several occasions, have increased 6000 %. We have reason to believe that further increases have been introduced since then.

In Hungary, passenger rates have risen, by successive increases, 800 % and freights 600 %.

Czecho-Slovakia applies the Austrian tariffs in Bohemia, Moravia and Silesia, and Hungarian tariffs in Slovakia and Sub-Carpathian Ruthenia.

In Italy, at the end of 1920 the increase in the price of tickets was about 230 % 1st class, 210 % 2nd class and 170 % 3rd class. For most kinds of merchandise the tariffs have been raised 300 %, an exception being made in the case of a few articles in general use, where the increase has been restricted to 200 %.

In Eastern Europe, no information is available for Poland, but it may be noted that on the Serbian railways tariffs were increased immediately after the Armistice by 150 % for passengers and 150 % to 700 % for goods.

Further increases in rates followed, but we have no precise information on this point ; it is probable, moreover, that still further increases have since been decided upon.

In Roumania, tariffs were raised 600 % for 1st class, 500 % for 2nd class and 400 % for 3rd class. Freights increased 500 %.

In Bulgaria, tariffs were raised both for passengers and goods 400 %.

On the Greek railway system as it was before the war, passenger rates were increased 200 % and freights 280 %.

We have no information with regard to the tariffs of the Baltic States except in the case of Latvia. The report drawn up by this country states that in 1920 passenger rates were 24 kopeks per kilometre 3rd class and 48 kopeks per kilometre 2nd class (there is probably no 1st class), and freights varied per kilometric ton from 4 kopeks to 0.72 kopeks. In January 1921 these rates were increased 50 % for passengers and 100 % for goods.

In conclusion, it may be said that the increase in railway tariffs is only one of the aspects of the general rise in wages and the cost of raw material and of the depreciation of currency. It is necessary, however, to add that in countries which have suffered least from the war a certain tendency to counteract further increases is already becoming apparent in connection with transport. A beginning has even been made in cutting down these increases by restoring the old reduced scales or by disguising a return to lower rates under the name of a general reform of tariffs. Since the level of transport rates, the price of goods and the cost of labour are all interdependent, it is clear that to escape from this vicious circle a beginning should be made with the first of these factors, which can be modified much more easily than the general conditions of production, since it is more intimately connected with the control of the State finances.

The remarks which may be made on the financial situation of the railways are of the same nature as those which apply to tariffs. The net receipts of all systems, without exception, fell off during and after the war ; this decline is not the result of inadequate receipts but of a great increase in expenditure which the rise in tariffs has not followed sufficiently closely. Almost all the administrations thus show a deficit in their annual balance sheets, but the amount of this deficit varies greatly in different countries. The highest figures naturally occur in countries where the currency has

depreciated. It must be repeated that this depreciation to a certain extent affects the whole problem. A deficit of several milliards in a country with a currency that has depreciated greatly is not very different from a deficit of several millions in a country where the currency is on a sound basis, when regard is had to the ratio of the two currencies. Naturally the situation in those countries which were neutral during the Great War or which were on the winning side, is essentially different from the conditions obtaining in countries which were disorganised as a result of defeat.

In England, which is the standard example of a country where the railways are operated by private enterprise, the railways were under State control from August 1914 until December 1918, in accordance with agreements which guaranteed the companies the same net receipts as in 1913, and, in addition, a reserve fund to cover the postponed expenses of upkeep. The period of control lasted from August 5th 1914 to August 15th 1921. The deficit which the State had to meet during the period of control was 40 to 50 million pounds per year; this is not a very large sum when account is taken of the fact that it applies to an original capital of about 1 $^1/_2$ milliard pounds, which in 1913 brought in an interest of 4.6 % (this interest was guaranteed by the State for the following years).

In France, the general co-efficient of operation (the ratio between expenditure and income) for all the systems, which was 63 % in 1913, rose to 71 % in 1914 and 1915, to 75 % in 1916, 84 % in 1917, 101 % in 1918, 127 % in 1919 and 132 % in 1920; it may be noted that the charges which had to be met out of capital rose from 806,000,000 in 1913 to 1,444,000,000 in 1920. The decline in gross receipts, the increase in expenditure and charges on capital led to a deficit of 389,000,000 in 1914, 358,000,000 in 1915, 345,000,000 in 1916, 555,000,000 in 1917, 975,000,000 in 1918, 1,850,000,000 in 1919 and 2,580,000,000 in 1920.

On all the great systems the receipts to 1918 exceeded expenditure if the charges on capital are not included under the latter head; from 1918, the receipts were not even sufficient to meet the working expenses, strictly so-called. The expenses showed an increase of about 20,000,000 in 1918, 875,000,000 in 1919, and 1,136,000,000 in 1920. These figures are, moreover, not final, as the accounts for military transport have still to be liquidated between the State and the companies. It must further be remembered that the figures referred to above apply to an original capital of about 30 milliards of francs.

The Spanish report points out that the financial position of the railway companies is not prosperous; it adds, without supplying any figures, that the receipts from working the railways are not sufficient to cover the costs and charges on capital, so that these companies have been compelled to ask the State for relief in the form of advances, which will be repaid later, in order to meet the increase in wages and the reduction in the working day, not to mention new purchases of rolling-stock.

In another neutral country—Sweden—the net receipts from the State railways amounted to 22,000,000 crowns in 1916, whereas in 1918 there was a deficit of about 45,000,000 crowns. This deficit disappeared in 1919, in which year there was a surplus of 5,000,000, which increased to 30,000,000

in 1920. Private companies have proved successful in keeping their profits at a fairly steady level.

In Norway, where there was a deficit of 3 million crowns in 1913 (it is not stated whether the expenditure includes charges on capital), the deficit rose to 11 million crowns in 1919 and in 1920, including the allowances for the high cost of living granted to employees.

Denmark states that the financial position of her railways is sound. Still confining our attention to neutral countries, we note that Switzerland in 1913 had a surplus of about 90 million francs to meet charges on capital; the surplus fell to 30 millions in 1918 and rose to 63 millions in 1919. The capital on which interest has to be paid is 2,670 millions.

Italy is one of the countries which suffered most from the rise in the price of coal, and this circumstance reacted on the financial position of her railways. The income from the State system (575 millions) showed a surplus in 1914 of 28 millions over expenditure (547 millions excluding charges on capital); in 1920 working costs rose to 2,690 millions as against receipts of 1,797 millions; the deficit was thus 860 millions. The co-efficient of operation rose from about 77 % in 1914 to 134 % in 1920. The capital exceeds 8 milliards.

The system of secondary railways and tramways also shows a marked decline in the net returns and therefore a deficit which must be made good by State subsidies.

When we turn to countries which suffered defeat in the war the deficits are found to be much greater.

In Germany, the surplus in 1913 exceeded a milliard marks—a sum which was more than sufficient to meet the charges on capital; in 1919 there was a deficit of 4 milliards (not including charges on capital), and this deficit rose to 11 milliards in 1920, with an addition of 2 ½ milliards for the interest on capital.

These statistics apply to the State railways at present administered by the Empire; as for privately owned lines, they are of practically no importance.

In the present Austria, railways are for the most part owned by the State. In 1913 the 19,289 kilometres of railway belonging to the State yielded a net profit of 190 million crowns; the charges on capital entailed an annual expenditure of 247 millions. The actual deficit when all the factors were taken into account was 51 millions. As regards the present Austrian railway system, the extent of which is only one-quarter of the former system (4,478 kilometres instead of 19,289), the deficit was 247 million crowns in 1919 and 3,589 million crowns in 1920.

The situation of the Hungarian State railways is, comparatively speaking, sound. Before the war, the net profit on the railways was 90 million crowns. It rose to 106 millions in 1918, and it must have increased still further during the following years, but the charges on capital are not included in these figures. In 1913 the net profit on the Hungarian southern system (Südbahn) was 9 millions, in 1918 it was 15 millions; but in 1919 and 1920 there was a deficit.

Czecho-Slovakia estimates that the deficit on her railways amounted

to 240 million Czecho-Slovak crowns in 1919; this deficit rose to 625 millions in 1920; it is thought, however, that the deficit will be reduced to 265 million crowns in 1921.

Most of the States in Central Europe have no definite statistics which would enable them to compare the present with the past situation. We may, however, draw attention to a few observations contained in the reports.

In the Serb-Croat-Slovene Kingdom, the financial situation of the railways is very serious; the receipts hardly cover half the working costs. The adoption of the eight-hour day in an agricultural country like Jugo-Slavia has not only led to a general rise in prices, but has created an almost paradoxical situation. There could be no better example of the absurd lengths to which the application of this principle may be carried than the fact that it is necessary to have three shifts working eight hours each on lines over which only two trains run in 24 hours!

The Roumanian report records the following disastrous financial facts: the deficit in 1920 was 330 millions, while before the war there was an annual surplus of receipts amounting to 40 millions.

In 1911 receipts from the Bulgarian system amounted to 27 million leva, and expenditure to 17 millions, giving a surplus of 10 millions. In 1920 receipts were 143 millions, as against an expenditure of 200,000,000, making a deficit of 57 million leva.

Standard-gauge railways in Greece within her former limits (we have no data with regard to the Macedonian lines) did not pay very well in 1914, and profits were still smaller in 1919. The co-efficient of operation rose from 93 % to 101 %. The deficit, which, when all the charges on capital were taken into account, amounted to 5 million drachmæ, rose to 10 millions.

Narrow-gauge railways, on the other hand, yielded, and still yield, a profit.

The railways in Finland also show a surplus.

Esthonia is looking forward to the immediate future with confidence.

Lithuania, which in 1913, apart from the charges on capital, realised a net profit of 11 million gold roubles, showed a deficit of 12 million German marks for 1920. This altered position is attributed to the political difficulties arising from the occupation of Southern Lithuania by Polish troops — the military occupation having impeded goods traffic — and to the scarcity of money for the purchase of rolling-stock.

* * *

In comparing these figures it must be remembered that the returns do not cover the same ground in different countries; certain countries, more particularly in reckoning the deficit, take into account — and this is the correct method — charges connected with capital; the others make no statement regarding either, and merely compare receipts with working costs for the period of a year. Whenever the terms of the reports enable us to do so we have stated whether the deficit included or excluded the

interest on the capital employed ; similarly we mention the amount of the capital to which the annual profit or loss referred.

Moreover, when the documents which we had at our disposal permitted us to do so, we gave the statistics relating to the co-efficient of operation (the ratio between expenditure and income)—one of the best indications of the financial position of a railway system.

Heavy deficits are due primarily, as we have already pointed out, to the fact that tariffs were not raised in proportion to the increase in the cost of working expenses, as it was feared, and rightly so, that the result would be to raise the price of the necessaries of life ; these deficits are also due to the disorganisation which has overtaken all administrations and which is shown in an all-round increase in the number of the staff. Confusion, indeed, leads to more work as well as to an undue increase in the number of employees. This increase is entirely out of proportion to the work which would be required of a staff under normal conditions.

But there were other still more noticeable causes, the eight-hour day, for example, which also led to an increase in the number of employees. While it is tolerable in all industries in which piece-work predominates, the eight-hour day became specially burdensome on the railways as a result of the difficulties which were experienced in reconciling the varied requirements of the service with the shorter day. It is not too much to state that for many classes of personnel the apparently slight reduction of the hours of labour has involved doubling the number of the staff, and it must be remembered that this happened at a time when wages were increasing much more rapidly than it was possible to raise tariffs without incurring the risk of reducing receipts.

The rise in the price of fuel has also considerably aggravated the financial position, but while the coal crisis may be regarded as over, the increase in expenditure under the heading of staff appears to be very difficult to arrest. Almost everywhere railway employees are regarded as entitled to security of employment and to wages increasing with length of service · these employees, moreover, are a united body, well organised and prone to go on strike—a fact which, taken in conjunction with the weakness of Governments struggling with the difficulties arising from the war, has ntroduced a political element into the question of the fixing of wages.

When we consider that the expenditure on staff in an organisation common to all European railways represents at the present time 70 to 80 per cent. of the total working expenses, it will be easily understood how completely the restoration of railway finances is bound up with the question of the number and remuneration of the staff ; but it is difficult to suggest a solution because the question is as much a political question as an economic one.

Such are the reasons which may be advanced in support of the opinions of critics who maintain that great efforts and much time will be required before a return can be made to former conditions in which railway receipts and expenditure balanced. It is possible to accept this view provided always that we differentiate between countries which suffered seriously from the war and those which were victorious or remained neutral.

It is perhaps unnecessary to add that this state of affairs will, in spite of the vast schemes which have been drawn up in every country, hamper the development of railways. Private capitalists will probably be averse to investing money in railways, and public funds which are subject to especially heavy demands in those countries where the need for new lines is greatest, will not be able to take the place of private enterprise.

In presence of all these difficulties it would be foolish to shut one's eyes to the difficulties; the right course to adopt is to face them.

While all the chief European States complied with the request addressed to them, only a small number of States outside Europe replied to our questionnaire. Among these were eight American countries: Bolivia, Brazil, Canada, Chile, Guatemala, Haïti, Panama and Paraguay, and four Asiatic States: China, Japan, India and Persia, which sent in the required statistics.

In 1922 there were in America (according to the statistics contained in the *Archiv fur Eisenbahnwesen*) 554, 124 kms. of railway, but the countries which forwarded replies had only 75,135 kms. of line—that is to say, a little more than 13 % of the whole.

North America was represented by Canada alone; Central America by the Republics of Haïti, Guatemala and Panama; South America by Bolivia, Brazil, Chile and Paraguay. We are thus not in a position to draw up a complete account of means of communication throughout the length and breadth of the American continent.

Moreover, while the reports supply interesting information, especially from the point of view of a description of the various systems, they clearly show that the war had no serious effects on the working of the railways.

Further, the particulars supplied refer to regional systems exploited by many companies according to various methods and under a system by which freedom of organisation and full liberty to fix the tariffs were allowed; we therefore do not possess the general statistical information which is necessary for bringing out clearly the characteristic features which we have noted in dealing with Europe.

Canada, in 1914, owned 49,549 kms. of line and 62,583 in 1919. This is a rather remarkable increase, amounting to about 20 %, and shows that building was in no way checked by the war. Canada is a vast and sparsely populated country, and her railways have not arrived at that final state of development which has been reached in Europe; it is prosperous to a degree and can develop that prosperity still further by opening up new means of communication.

The great trans-continental lines in Canada, such as the Canadian National Railway, the Grand Trunk Railway, and the Canadian Pacific Railway are well known: they represent five-sixths of the whole system, the remaining sixth consisting of local lines.

The Canadian lines are of the European standard-gauge and can use the same rolling-stock as the adjacent lines in the United States.

We have no statistics on the volume of goods traffic and the financial position.

The Haitian Republic is rather densely populated in comparison

with other American territories. The need for means of communication is therefore keenly felt. In 1915 there were 252 kms. of narrow-gauge railway, all having their terminus at Port-au-Prince. No new lines have been laid since 1915, but we are unable to state whether this fact is to be attributed to the war.

In the Republic of Guatemala there are 1,103 kms. of railway, and in the Republic of Panama rather more than 500 kms.

Brazil owns 28,127 kms. of line, the larger portion of which—25,104—is one-metre gauge. The report calls attention to the fact that the construction of a system of this importance is a remarkable achievement for a country like Brazil.

It has to import from abroad both rails and rolling-stock ; labour is scarce and therefore dear ; further, the difficulties presented by the ground are great and varied. The population, again, is grouped into a few widely scattered centres, since Brazil has only 30 million inhabitants on a territory as large as Europe.

It will be necessary to lay new lines to link up some of the existing systems which are at the present time unconnected.

In Bolivia 523 kms. of railway are in operation and 671 kms. under construction.

At present Chile owns 9,000 kms. of railway, as against 6,370 in 1912. Moreover 10,000 kms. of new line are in contemplation.

The capital invested in railways is 700 million gold francs ; in 1918 receipts were 123 million gold francs ; the figures for traffic are 27 million for passengers and 16 million tons for goods. Coal is obtained from the national mines.

Paraguay has few railway lines (in 1912 there were only 373 kms.), but new and important lines are in contemplation. It should be noted that this country has many large navigable rivers which supply it with means of communication throughout its whole extent.

Still quoting the statistics contained in the *Archiv fur Eisenbahnwesen*, we are able to state that Asia had in 1912 107,230 kms. of line, and the countries which replied to the questionnaire (China, Japan, Persia, British Indies) had, at this date, railway systems amounting to 74,770 kms., that is to say about 70 % of the whole. Their reports enable us, therefore, to form an idea of the importance of the Asiatic railway systems, since, apart from Asiatic Russia, for which we have no statistics relating to the war period, those railways are all in China, Japan and India.

In China there were 10,918 kms. of lines in operation, 3,572 kms. under construction and 22,810 kms. which were being planned or for which concessions had already been granted. In 1915 China had 629 locomotives; the number rose to 653 in 1918. The volume of traffic, which was 20,494,650 train-kms. in 1915, amounted to 23,398,242 train-kms. in 1918. The number of passengers increased during the same period from 20,043,209 to 25,740,841, and goods traffic from 32,473,043 to 44,490,538 tons. The consumption of coal was 504,285 tons in 1915, and 631,313 tons in 1918. The price of this coal rose from 6.72 to 7.86 Chinese dollars.

We possess no further information, but we have every reason for

believing that the effects of the world-war on Chinese railways were of small importance.

Japan, on the contrary, experienced the effects of the war, in which from the very outset she took an active part, especially on the industrial side.

The necessity for opening up communications by land with her allies gave a great impetus to traffic through Russia. It should be added that Japan has always been deeply interested in the question of direct communication with Europe by rail. For this reason she was a party to the Berne Convention, and she inaugurated passenger and freight services between the Japanese and Korean railways and the Chinese and Russian railways. Among the various direct passenger services, mention may be made of the two great routes known as the "Circular route *via* Siberia and Suez" and the "Route round the world *via* Siberia and Canada".

In 1914 the Japanese railways were largely operated by the State and were of a total length of 10,568 kms. The Government, following a prepared plan, annually laid about 350 kms. of new line. During the war, however, it was impossible to carry out the work on the full scale demanded by the plan, but in 1919 the length of the system was 13,223 kms.

Rolling-stock increased during the war, the number of locomotives rose from 2,500 to 3,101, passenger coaches from 6,440 to 7,250 and goods trucks from 42,614 to 51,065. During the years immediately preceding the war, railway transport was passing through a period of serious depression ; but in 1915 an area of unprecedented prosperity opened for Japanese industry and commerce and this lasted down to the armistice. Passenger traffic at this time showed an increase of 119 %, and goods traffic an increase of 11 %. Passenger rates had to be raised from July 1918 by 25 % for third class, 75 % for second class and 117 % for first class. A further increase, which involved an additional 20, 30 and 40 % for the threeclasses respectively, followed these earlier measures. Freight rates were raised 20 % in 1918 and again increased in 1920 by 28 %. The consumption of fuel on the Japanese railways rose from 1,700,000 tons in 1914 to 3,070,000 tons in 1919 — an increase of 72.5 %, which was accompanied by a 40 % rise in prices.

The financial results proved satisfactory even during the period when the effects of the war were most acutely felt. In 1914 the net return on the capital invested (1,007,000 yen) was 5 % ; it rose to 7 % in 1919. After the armistice a period of depression set in.

Owing to her distance from the theatre of war, Japan, while suffering no injury directly due to hostilities, benefited by the increased activity arising from the war.

British India also felt the effect of the war and experienced some of the characteristic difficulties directly caused thereby, such as shortage of stock and labour and the attendant delays in carrying out repairs.

During the war the Indian railways supplied Mesopotamia and other theatres of war with a number of locomotives and much rolling-stock. Indian workshops were employed in the manufacture of ammunition, and the result is a shortage of stock for present requirements. But the

railway administration acted prudently, for it at once began to secure supplies of the necessary stock, the purchase of which involved a very heavy outlay in 1920.

Passenger and goods rates were slightly increased; the consumption and price of fuel rose. The coal in use is chiefly of native origin.

India has about 50,000 kms. of line. Traffic developed largely during the war (it rose from 26 million passenger-kms. in 1914 to 32 millions in 1920; from 23 million ton-km. of goods in 1914 to 32 millions in 1920).

Persia is poorly provided with railways (the existing lines do not greatly exceed 250 km.), but the present Government intends to encourage the growth of railways. It is considering new lines and is investigating plans which have been submitted by private companies desiring concessions.

II.

INLAND AND OCEAN NAVIGATION.

The enquiry on the subject of ports and shipping could not be as complete as that on railways, as in most cases the railways are a State monopoly, held by the very Governments which were to reply to the questionnaire, or to a certain extent, are under their control. For inland and ocean shipping, which are, as a rule, subject to no control, except in certain cases which we shall mention later, information and data are undoubtedly more difficult to obtain. Further, the effects of the war on shipping, and the condition of ports, cannot in any way be compared with its effects on the railways, of which the resources were more directly taxed. It is undoubtedly common knowledge that ports and canals suffered heavily and that many vessels were destroyed as a result of submarine warfare, but, with very rare exceptions, the damage done to ports and canals did not interrupt transport, and the shipping losses were speedily made good, thanks to the mobilisation of the industrial resources of the whole world. Whilst each of the belligerent countries had to supply from its own stock material for the repair of destroyed lines and damaged rolling-stock, in matters of shipping the resources of countries which were neutral or distant from the theatre of war could be drawn upon as effectively as those of the countries which were directly concerned.

We shall see that although the railway crisis still continues as a result of the shortage of means of transport, a superfluity of tonnage, which was only to be expected in view of the increase in ship-building and the absence of the demand created by the war, has already become apparent in the case of shipping.

We shall follow the same plan as that adopted in the case of the railways, dealing first with European countries and then with extra-European countries. We shall also draw a distinction between inland and ocean shipping.

I. *Navigable Waterways.*

Among the countries of Western Europe, France and Belgium supplied fairly complete information regarding the condition of their shipping.

In 1913, the navigable waterway system of France had a total length of 11,316 km., 4,880 of which was canal. As a result of the restitution to France of Alsace-Lorraine, the canal system has been increased and now includes 11,791 km. in operation. The navigable waterways destroyed during the invasion represented a length of 1,036 km. and have already in nearly every instance been reopened to shipping. Plans are being drawn up and works carried out for the widening of certain canals with a view to making them accessible to vessels of 600 tons, and for the improvement of the Seine between Bougival and Rouen and of the Rhone between the Swiss frontier and the sea.

The French river ports, of which the traffic in 1913 exceeded 10,000 tons, numbered 678 ; since the restitution of Alsace-Lorraine, they number 700. Further, during the war, the Government established numerous railway connexions with river ports, and equipped the harbours with the constructions necessary for berthing and mooring, and with suitable plant. Some of these connexions will be done away with, others will be employed for commercial traffic.

According to statistics drawn up in 1912, there were, on the French navigable waterways, 15,141 ships of various sizes with a total capacity of 4,035,199 tons. During the war 2,000 of these vessels were destroyed, but, under the Treaty of Versailles, the river fleet is to be increased by tugs and Rhine vessels, together with all other tonnage which is to be handed over by Germany.

The goods transported over the French system of waterways amounted in 1913 to 41,896,754 tons. In 1920 the tonnage was only 21,500,000 tons, — that is to say, rather more than half the pre-war tonnage. Up to 1914 the Government had taken no part in the operation of inland waterways, and although they had been constructed and were kept in repair by the State, they were entirely at the disposal of private enterprises. The necessities of the war compelled the State to requisition stock and to place inland shipping under military control. After demobilisation, certain regulations dealing with charter-parties, bills of lading, and the control of freights were maintained.

Despite this control, freight charges have increased considerably in comparison with those of 1914. Freight between Rouen and Paris which, before the war, varied between 3.50 and 5 francs per ton, in 1912 rose to a

maximum of 32 francs. It then fell in proportion to the decrease in the price of coal. The latter, which before the war had cost 20 to 35 francs for the qualities used in shipping, rose to 500 francs, and fell again to 220.

The rise in the present cost of inland waterway transport occasioned certain important comments in the Belgian report.

The present state of inland navigation — in Belgium and elsewhere — is characterised by the considerable increase in the cost of water transport as compared with the pre-war cost. This increase is so great that it has led to a paradoxical result : the price of water transport exceeds that of transport by rail ! Thus, inland navigation has lost the sole important advantage it had over the railways — cheapness ; this is obviously a menace to inland navigation, which is today only used because the railways cannot meet all the transport demands made upon them, and because the exorbitant price of rolling-stock prevents the purchase of new trucks. A time will come when the railways will be provided with new rolling-stock ; if inland navigation does not then find some means of reducing its freight rates, the present atrophy will degenerate into complete stagnation, and shipping will enter upon a period of decay.

The present rates on the Belgian system of navigable waterways are 5 to 10 times higher than those existing before the war ; therefore it appears difficult to reduce them sufficiently to restore the margin which existed before the war between transport by rail and water transport.

Shortly after the Armistice, the Belgian Government established the State Service of the I. W. T. (Inland Waterways Transport) for the working of tugs which had been abandoned by the enemy and seized as booty. This service is not a monopoly, for there are 150 privately owned tugs which, as they compete with these Government tugs, exercise a controlling influence on the cost of towage. Nevertheless, this represents a state interference in an industry which had hitherto been completely unrestricted ; an interference which is aggravated by the existence of local committees responsible for distributing traffic between the railways and the waterways, having due regard to their respective rates and the requirements of industry and commerce. When there is a shortage of rolling-stock, the railways refuse to supply trucks to those shippers who can, without disadvantage, use the waterways.

The Belgian report itself admits that before expressing any opinion as to this innovation, which would lead to a working agreement between railways and waterways, the experiment must be continued for a certain length of time.

In seeking to explain the reasons which led to the rise in freights for inland navigation, the Belgian report states that it is impossible to speak of a decrease in the total tonnage which Belgium has at her disposal in view of the fact that the losses incurred by the destruction of shipping have been made good by this war booty. Thus, the rise in freight rates can only be explained by the increase in the cost of ship-building and working expenses, together with the decrease in working hours.

Tugs which in 1914 cost 180 to 225 francs per h. p. now cost 1,000

to 1,500 francs ; the cost of a steel barge of 300 tons has risen from 25,000 to 150,000 francs ; a wooden barge of the same tonnage from 12,000 to 45,000 francs, and the cost of a Rhine barge of 1,350 tons has increased from 100,000 to 400,000 francs.

Before the war, the monthly pay of crews hardly exceeded 175 francs for the captain and engineers ; it now amounts to about 700 francs. In the case of stokers and sailors the proportion of increase is even greater.

As regards fuel, the price of the briquettes used on ships before the war was 20 to 25 francs ; at present a truckload of briquettes costs 155 francs loaded. All other material used in the shipping service has undergone a similar increase in price.

The new regulations on working hours have brought about an increase in the duration of voyages by 18 per cent. in summer and by 9 per cent. in winter.

Passing to Central Europe, we notice that in Germany, while the traffic of river ports amounted to a total of approximately 123½ million tons in 1913, it had dropped to 59 million tons in 1918 — that is to say, to half the previous figure ; according to the report, the decrease became even more pronounced in 1920. We have no further data at our disposal.

The inland waterways of Austria are the Danube, with the ports of Vienna—Freudenau, Vienna—Kuckelau and Linz ; Lake Constance, with the port of Bregenz and the landing stages of Hard, Lochau and Fussach.

The Austrian section of the Danube (from Passau to Theben) has a length of approximately 343 kilometres. Considerable slopes in its bed and the great differences of depth between the high and low water-levels had necessitated dredging operations, which will have to be continued. The ordinary work of upkeep has not been neglected.

The present economic situation of Austria does not allow her to carry out the vast schemes which had been planned before the war : the enlargement of the river harbour at Vienna, measures to improve the conditions of navigation and to render the banks of the river immune from floods, and the construction of a canal from the Danube to the Oder, which would ensure to Austria a natural means of access to the North Sea and to the Baltic. As we shall see later, the idea has been taken up by Czecho-Slovakia.

The Danube fleet, which is the property of two private companies, has been considerably reduced by war losses, which have only been partly balanced by new acquisitions ; the shipping on Lake Constance has remained unchanged.

During the war, the passenger service on the Danube was subject to restrictions and interruptions as a result of the shortage of coal and the seizure of ships by Hungary, Roumania, and Jugo-Slavia. At present, the service has improved, both because more coal is available and because certain obstacles of an international nature have been removed.

Goods traffic was also interrupted during the war ; it has been now resumed, and trade is carried on with Jugo-Slavia, Bulgaria and Roumania.

The passenger traffic on the Danube increased in 1918 in comparison with the traffic of 1913, owing to the fact that the Austrian railway service

was extremely defective. In 1919 it diminished considerably; it is estimated at 990,457 passengers as against 2,206,460 in 1913.

There is a smaller decrease in passenger traffic on Lake Constance. The transport of goods has also diminished considerably on the Danube, and has almost ceased on Lake Constance.

Before the war, freight rates on the Danube were fairly low as compared with the railway tariffs. At present the transportation rates have increased for passengers to 25 times and for goods to 80 times the pre-war figure.

Coal of native origin, as used on ships, cost 15 crowns per ton and foreign coal 23 crowns. In 1920, the prices had risen to 243 and 434 crowns respectively.

Before the war Hungary possessed 3,502 kilometres of navigable waterways, 1,500 on the Danube and 602 on the Save; as a result of the new frontiers, the system is only 1,400 km. in length, the Danube representing only 384 km.

In 1913, the Hungarian river fleet amounted to 164 steamships and 521 barges, of a total capacity of 121,171 tons. As part of the fleet fell into the enemy's hands, the Hungarian companies at present possess only 88 steamers and 304 barges.

In 1913, the Hungarian river traffic amounted to 2,181,013 passengers and 4,863,527 tons of merchandise. At the end of the war, and during the disturbances which followed it, traffic was for a long time totally suspended.

It was resumed at the end of 1919, and has increased to a certain extent, but does not reach the former figures because of the high price of coal.

Tariffs have very considerably increased: the transport of goods between Budapest and Vienna cost 300 hellers in 1913, 520 at the end of the war, and 13,200 at the time when the report was drawn up. A third-class ticket from Budapest to Vienna cost 4.60 crowns in 1913, 9 crowns at the end of the war, and 200 at the time when the report was drawn up.

Czecho-Slovakia, with its territory situated on the watershed of Central Europe, between the North Sea, the Baltic and the Black Sea, is well supplied with rivers, since the Elbe, the Oder and the tributaries of the Danube rise in Bohemia, Moravia and the Carpathians. The total length of the navigable waterways belonging to the New State is 761 km., 348 on the Moldau, 223 on the middle Elbe, 172 on the Danube and 18 on the Oder.

The Czecho-Slovak Republic has considered a vast number of schemes for the improvement of conditions of river navigation, and for the employment of the available water-power. It intends to construct a canal joining the Elbe and the Danube, which would connect with the Oder near Oppeln and with the Vistula near Cracow, and also a canal joining the Vetava to the Danube, to say nothing of the canalisation of the Oder in order to effect a junction with the port of Stettin, where the Treaty of Versailles assigned a free zone to Czecho-Slovakia.

The former Austro-Hungarian Empire had contemplated constructing a canal from the Danube to the Oder, between Vienna and Moravska-

Ostrava. Its course will be modified to conform to the requirements of the new State.

The navigable waterways of Czecho-Slovakia are provided with well-equipped ports. An important new harbour at Prague is under consideration. 82 million kr. will be set apart for its construction ; it is hoped to recover the greater part of this sum by the sale of land which will be reclaimed from floods.

A scheme is also on foot for the enlargement and improvement of three ports on the Danube: Bratislava, Komarno and Parkan ; the cost is estimated at 415 million kr.

The tendency of the Austro-Hungarian Empire was to send all its foreign traffic *via* Trieste, its only seaport, and it took no interest in navigation on the Elbe, the development of which was to a certain extent checked.

The Bohemian boatmen and shipping companies preferred to deal with German companies, as the German Government promoted navigation. Thus, although Czecho-Slovakian traffic represents 33 % of the total traffic on the Elbe, no company of any importance has been left on former Austrian territory, and the Czecho-Slovak-owned fleet is comparatively unimportant.

We have little information regarding Czecho-Slovak traffic on waterways. In 1913, 2,808,695 passengers were carried on the Elbe between Leitmeritz and Dresden, and in 1918, 1,324,304 (65 kms. of the distance is in Czecho-Slovakia).

Before the war, the goods traffic on the Elbe and the Vltava (between Prague and Hamburg) amounted to 3,487,000 tons. We have no information respecting the extent to which this traffic was affected during and after the war.

In the case of Switzerland, the Rhine is the principal navigable waterway giving access to the sea.

During the war, there was no connection between navigation on the Rhine and ocean transport. At the end of the war, traffic on the Rhine was resumed with an intensity which was all the greater in view of the fact that the railways were passing through a critical period ; when the railways have resumed their normal working, Rhine traffic will diminish.

All the ports of the Rhine, from its mouth to Basle, are capable of meeting any demands that may be made on them, and their plant did not suffer during the war. Directly after the Armistice, Switzerland undertook the construction of the Port of Bale—Petit Huningue, which will cost approximately 10 million francs.

As a navigable waterway, the Rhine can deal with the same amount of traffic as before the war. In the section between Strasburg and Bale, which has not yet been regularised, the long interruption of shipping has caused some damage ; this will be remedied by means of dredging. On the Rhine, as elsewhere, freight rates have increased to such an extent that they are in excess of railway rates.

In Italy, the war drew attention to the desirability of developing

inland navigation. The canal from the Po to Brondolo in the Venetian Lagoon has been constructed; another canal from Milan (where a large inland harbour is being built) to the junction of the Adda and the Po, is under construction; thus Milan will be joined to Venice by a waterway.

The Venetian area will include 1,400 km. of waterway, part of which is already in operation and the remainder is in course of construction. In the whole of the peninsula the total length of the navigable waterways is 4,847 km., 1,811 of which remain to be completed.

In 1913, the transport effected for the whole system was estimated at approximately 9 million tons; this underwent a decrease during the war, but it is stated that traffic is already recovering.

In Eastern Europe, Poland, which has many waterways, intends to complete the improvement of the Vistula, to reconstruct the Augustowski and the Krolewski canals, which were destroyed during the war, to complete the port of Warsaw, which is at present under construction, to build new harbours at Cracow, Plock, Wioclawek and Tezew, the plans of which are at present being considered. The circular canal of Warsaw is being constructed, and the extension of the Dombrowa-Warsaw-Wiala canal, which is to ensure communication with Danzig, is under consideration.

Polish shipping is at present operated by the State; but the Government intends to hand it over to private concerns. The material is in bad condition. Freight rates heve increased considerably.

The Serb-Croat-Slovene Kingdom has a great many waterways, the total length of which is 2,091 km. The Danube accounts for 522 km. of this total, which, apart from the section known as the Iron Gates, where it was necessary to construct canals, is well suited for navigation, as the minimum depth is greater than two metres.

The Save, the Drave and the Tisza are partly available for navigation. New works to be carried out include the improvement of the middle Danube and of the Save, and the construction of dykes to prevent flooding.

Three new canals are being contemplated: one from Vukovar to Samac, which will join the Danube and Save; another from the Danube to the Adriatic (following the Save to Sisak, the Kupa to Velika Kapela, then joining the Adriatic by a tunnel 24 km. in length; total cost four hundred million dinars); lastly the Morava-Vardar canal of a minimum length of 640 km.

The equipment of the ports which already belonged to Serbia is somewhat out of date, but they are in a favourable situation for loading and unloading. The Austro-Hungarian ports were better equipped, but they suffered serious damage during the war.

In order to restore the waterways to their normal condition, it will be necessary to raise vessels which were sunk and bridges which were demolished; to repair wharves which had been damaged by bombardement; to reconstruct the stores, offices and dwellings for the personnel and all other buildings destroyed by the enemy; to arrange for the dredging of sandbanks, to obtain cranes and grain-elevators, and generally all requisite plant for loading and unloading. This is all urgent work, which is only hindered by lack of funds.

Serbia herself only possessed an insignificant fleet ; the whole of the merchant fleet on the Danube and its tributaries belonged to Austria-Hungary. As a result of captures effected during the war and sessions since the Armistice, the Serb-Croat-Slovene State at present possesses one-third of the fleet which plied on the Danube, although—as the report points out—half the navigable section of the Danube system is in Yugo-Slav territory. The material is in rather bad condition.

In 1912, the goods traffic on Serbian navigable waterways amounted to 446,000 tons. In 1919 transport in the whole of the Serb-Croat-Slovene Kingdom increased to 1,965,000 tons. Since then it has increased considerably.

Before the war, Serbian shipping companies required State subsidies ; in 1919, a shipping syndicate was formed, of which the State is a member, and which, from its very first financial year, has been able to show a satisfactory balance.

Roumania possesses approximately 2,840 km. of navigable waterways ; the main course of the Danube accounts for 1,075 km. of this total, its secondary branches for 395 km. ; the rest is made up by the chief tributaries of that river.

There are 36 ports on the Danube. Up to the beginning of the world-war their construction and upkeep had cost Roumania nearly 126 million lei. These ports are well equipped, especially for grain traffic. Urgent work will have to carried out, both for the ordinary upkeep and for the improvement of the waterways and ports ; the total expenditure is estimated at five hundred million lei. Of the fourteen million tons which represent the total of purely river traffic on the Danube, the share of Roumania amounts to approximately six million tons.

22 % of the tonnage, 34 % of the vessels and 66 % of the passengers carried are Roumanian.

The number of craft of every description sunk in the lower Danube during the war was approximately 250, of a total tonnage of 150,000. It is proposed to spend 250 millions for the increase of shipping. The present rates applied to goods are ten times higher than those in force before the war ; in the case of grain, the rates are 25 times higher. Before the war, the fuel generally used on the vessels, a by-product of petroleum, known as Mazout or pacura, cost 30 lei per ton ; it now costs 550 to 820 lei.

The report states that in order to meet the requirements of river transport in the near future, to ensure the upkeep of the navigable waterways on the lower Danube, and to complete the equipment of the river ports, it will be necessary to spend approximately 2 milliard lei.

In 1911, Bulgaria possessed nine ports on that part of the Danube which formed her frontier with Roumania ; these were reduced to seven by the cession of Silistria and Turtakai. Only a few of the Bulgarian ports have been improved. These are Russe (Rustchuk), Sistova-Lum and Vidin. These ports are being enlarged and equipped with new plant.

In 1911, the traffic in these Danube ports amounted to 669,265 tons of merchandise, unloaded and loaded, and 364,653 passengers.

The Greek rivers are not navigable. There is, however, an important

river fleet flying the Greek flag which carries goods on the lower Danube between Turnu-Severin and Galatz. This fleet, which numbers 355 barges of a total tonnage of 319,344, forms approximately half the river tonnage used between the mouths of the Danube and the Iron Gates.

Among the Baltic States, Lithuania, which, with the exception of the northern area watered by the tributaries of the Dvina, is situated in the basin of the Niemen, possesses 5,772 km. of waterways, including the Augustovo Canal, 93 km. in length.

Except in the Memel region, the fleet suffered considerable damage during the war.

To reorganise inland navigation and render it able to meet the requirements of transport it will be necessary to carry out a whole series of engineering works and to obtain new vessels, together with dredgers, excavators and cranes, etc.

The navigable waterways of Esthonia are the river of Emajogi, with the port of Tastu (Dorpat), and the lake of Peipous, of which the most important ports are Kodawere, Mustvec Ranna-Pungeria, Wasknarva (Syrenetsi). Other waterways which were formerly employed are now abandoned. Navigation in Estonia is impeded by the long winters, during which the rivers are frozen. Further, the country is lacking in cheap and heavy produce, such as minerals and coal, which are generally transported by water.

The following are the general conclusions as regards inland navigation in European countries which may be drawn from this enquiry. Navigation was also disorganised by the war ; this disorganisation is due to the prejudicial effects involved in the displacement of the frontiers, rather than to damage which was the direct and immediate result of the war.

From a technical point of view, inland navigation made no progress during the war : we should, however, note the tendency shown in many countries to extend their waterway system, to improve and enlarge their ports and equip them with the necessary plant. As in the case of the railways we must repeat that it would be useless to expect speedy results from these far-reaching schemes, for the general lack of financial resources hinders the execution of the contemplated improvements.

With regard to working conditions, it could only be expected that the cost of river transport would increase far more rapidly than that of transport by rail. Railways are everywhere either managed or controlled by the State, and the Governments avoided or prevented heavy increases in rates until the existence of large working deficits showed the necessity for adapting the rates to the increased expenditure. On the other hand, navigation, which is entirely in the hands of private concerns, immediately adapted itself to the increased demand for transport and the increase in working expenses.

Thus it came about that at certain periods, the cost of transport by water became higher than that of transport by rail, but this phenomenon should be regarded as transitory. Freights began to fall even before the railway tariffs, and when prices become more stable, navigation will once more offer its services on terms which are more advantageous than those

of the railways, otherwise it will lose its *raison d'être*, at any rate in the countries of Western and Central Europe, where railways are extremely numerous.

Inland navigation in extra-European countries does not call for any remark, as it suffered less from the war than the railways.

Canada is rich in waterways, but its report contains nothing of note with the exception of a striking description of its present system.

In the Republic of Haiti the only navigable river (150 km.) is the Artibonite, which is of material assistance in the development of that rich country.

Brazil possesses many large waterways. The report brings out the characteristics of these waterways on which the war had not and could not have any effect.

Bolivia also has many navigable rivers which assist her commerce.

Among the Asiatic countries which replied to the questionnaire, China occupies a remarkable position as regards inland navigation. She possesses a great river, the Yangtse, which is navigable for a distance of 2,500 km. from the sea. To this river must further be added a few tributaries of lesser depth. There are also many waterways which are suitable for small vessels. We have no exact data as to the amount of traffic and the cost of freight.

Persia has only two rivers which are really navigable: the Karun and the Shatt-el-Arab. Other rivers are only accessible to extremely small vessels. The ports on the Karun deal annually with 30,000 tons of merchandise.

2. *Seaports and Ocean Shipping.*

Among the countries of Western Europe, France devoted much effort during the war to extending and perfecting her seaports. (The English report supplies no information regarding ports or navigation.)

The French ports can berth eleven hundred vessels of all sizes. There are 654 berths for vessels with a draft of over 6 metres; 184 of these were built during the war.

In recent years, the French ports have been equipped with up-to-date mechanical plant, motor cranes and railway track. Part of this track and plant was erected by the Americans or the English.

The maximum capacity of the French ports is approximately 3,500,000 tons. The loading and unloading of goods reached its maximum in 1916 with 56,673,998 tons; this dropped to 41,000,000 tons in 1920.

The buildings suffered comparatively little as a result of the war; but during hostilities and immediately after the Armistice, maintenance and repair work could only be carried out as far as was absolutely essential. During the last few months great efforts have been exerted to make up for lost time, and these will be continued despite the considerable increase in the cost of labour and raw materials. The upkeep of the ports, which

appeared in the budget of 1914 as item of 8,500,000 frs., is estimated at 46,000,000 in the budget for 1921.

Further, a vast scheme for engineering works intended to meet the increase in transport, which will follow the economic recovery and the reconstruction of the country, has been drawn up. This scheme for enlarging the ports will involve an expenditure of 3,300,000,000, half of which is to be borne by the State and half by the local authorities concerned.

Before the war the French merchant marine included vessels of a total gross tonnage of 2,555,775 (1); on January 1st, 1921, the total displacement had increased to 3,138,670 tons; of this amount 2,418,754 tons belonged to private owners, 452,943 formed the Government fleet, and 266,973 were derived from the German fleet.

The report states that regular shipping services are far from being in their pre-war state. If we take the services which have as termini the six great French ports (Dunkirk, Le Havre, Nantes, St. Nazaire, Bordeaux, Marseilles) we note that before the war there were 194 lines; 63 of these were totally suspended, 17 only ran at irregular intervals and only 48 new lines have been established.

The number of passengers who embarked in French ports was 2,912,278 in 1913, and 2,535,000 in 1920.

The cost of transport has naturally increased considerably as compared with the pre-war period. A few examples will show this. The price of a saloon passage from Havre to New York was 500 frs. in 1914 and 2,900 in 1921. A passage from Marseilles to Shanghai cost 1,680 frs. in 1914, and 5,450 in 1921. The freight rate for goods from France to Madagascar was 66 frs. per ton in 1914, and 198 frs. in 1921.

It should be noted that the prices quoted for 1921 do not constitute the highest figures reached for ocean transport. During the war they reached extraordinary heights; for example, freight rates from Saigon to Marseilles which were 23 shillings in 1914 had risen to 500 shillings in 1918; but they fell again to 115 shillings in 1920. It need scarcely be added that in view of the continual fluctuations which are peculiar to ocean freights, these figures must be considered average and approximate.

The cost of the fuel necessary for navigation has increased in proportions equal to those already mentioned in the case of the railways. In 1913 the Compagnie Transatlantique was paying 31.30 frs. for its bunker coal, 120.55 frs. in 1919 and 280.42 frs. in 1920. There was a fall in the price of coal in 1921.

As regards the general financial situation of the mercantile marine, it is impossible to supply any exact figures. But there can be no doubt that during the war and the period which immediately followed it, the mercantile marine in the whole world went through a period of great prosperity.

The French report contains a list of the fluctuating quotations on 'change of the shares of the chief ocean shipping companies. It may be

(1) The reports do not all make it clear, in their information regarding tonnage, whether grsss or net tonnage or dead weight is meant. Whenever possible, we have supplied the lacking information from other sources.

noted that, as a general rule, the value of all these securities has risen considerably.

The seven Belgian ports (Antwerp, Ghent, Zeebrugge, Ostend, Nieuport Brussels and Louvain) are in excellent condition. They are constantly being enlarged and equipped with new plant. New docks have been constructed at Antwerp, a new wet-floating dock parallel to the two older docks at Ghent, and the city of Bruges intends to revive its former splendour by making Zeebrugge a port for fast vessels which will be the terminus of the service between the Continent and the Americas and also a first-class fishing port.

The Belgian fleet numbers 213 vessels with a gross tonnage of 506,044 tons and a certain number of packet-boats, some of which are equipped with turbines and develop a speed of more than 23 knots.

As an example of the variations in freight rates, we may instance the price paid for the transport of coffee from Santos to Antwerp, which was 40 frs. per ton in 1913, then from 200 to 120 frs. in 1920, and finally 100 frs. in 1921.

In 1919 and 1920 the price of bunker coal of English origin varied between 400 and 525 frs, per ton, that of Belgian coal between 165 and 250 and that of American coal between 175 and 350 frs.

It is superfluous to add that the increase in the price of coal is one of the causes — but neither the sole nor the most important causes — of the increase in the freight rates.

The report of the Netherlands contains an excellent description of the equipment of the Dutch seaports, but supplies us with no definite information as to the influence of the war on ocean transport ; moreover, in the case of neutral countries, such influence was in every respect advantageous.

The Spanish ports are in good condition and many improvements have been carried out in them. A free port is to be built at Barcelona and the ports of Valencia, Cadiz and Algeciras are to be enlarged. The amount of goods loaded and unloaded reached 17 million tons in 1,920.

The Spanish fleet was increased during the war by the addition of 329 units of a total tonnage of 129,000 ; at present it numbers 1,192 ships of a gross tonnage of 1,007,192 tons.

The price of passages has increased by 150 to 200 % for first-class passages and from 50 to 100 % for third class.

The increase in freight rates has varied from 100 to 250 % according to the lines and the class of goods.

The chief ports of Portugal (Lisbon and Leixoes) are in good condition and have been improved. New wharves have been built, new docks constructed and high-power cranes installed. In 1919 the total traffic, including that of ports of secondary importance, amounted to 2,507,792 tons of goods loaded and unloaded, and 75,482 passengers.

The Portuguese fleet numbers 202 vessels of a total tonnage of 275,199 tons. The report contains no further information.

Sweden points out that in Central Europe the upkeep of ships was entirely neglected during the war to such an extent that certain ships had

to be laid up. But although a few old craft were thus eliminated, there was on the other hand an increase in new units of heavy tonnage. Thus, on the whole, the fleet has been to some extent renewed. This remark may be applied to all the countries ; on the conclusion of the war, old vessels were everywhere scrapped and new ones built which were better calculated to meet all requirements, both by reason of their higher tonnage and their more modern and perfect construction.

The increase in the price of passages on Swedish steamers is stated to be 100 to 350 % ; that of freight rates sometimes reached 300 % and in the case of English coal 680 %.

There is no need to dwell on the price of bunker coal, which — unlike railway coal — does not vary from one country to another, as steamers coal in the course of their voyage, wherever they happen to be. Before the war only English coal was used in Swedish ports, and in 1920 half English and half American coal. This practice, moreover, is fairly general. The increase in the demand for coal which was due to the war gave rise to an increase in the import of American coal in Europe. But these imports are again beginning to decrease as a result of the comparatively high cost of American freight as compared with English freight.

Swedish ship-owners consider the present financial situation of shipping as unsatisfactory. This opinion applies to the more recent period when, as the extraordinary demand for transport during the war and immediately after the Armistice had ceased, the freight rates underwent a considerable reduction, while working expenses were not proportionately reduced. Although the price of coal has also fallen, this reduction is not sufficient to restore the balance and to give ocean-shipping a satisfactory financial basis.

The report states that the condition of the Norwegian ports can hardly be considered satisfactory. They proved inadequate during the war, which gave rise to congestion of traffic. The traffic was none the less considerable. The sums expended on the upkeep of the ports are limited, the Government granting no subsidies, and the cost of engineering works remains high. During the years 1914-1920, 1,350,000 crowns were spent on new constructions, and the schemes already considered provide for an expenditure of 2,809,000 crowns in the near future.

In 1914 the Norwegian fleet numbered 3,225 vessels, representing a gross register tonnage of 2,648,661. The number of vessels sunk by torpedoes or mine explosions amounted to 824, with a total gross tonnage of 1,237,192. In 1920 the fleet numbered 3,828 vessels with a total tonnage of 2,429,232.

The Norwegian passenger traffic underwent a considerable increase during the war, because many nationals of belligerent countries were obliged to pass through Norway or to travel on neutral vessels.

Naturally the price of bookings has increased. For example, in 1914 a passage from Bergen to Newcastle cost 72 crowns first-class, 108 in 1918 and 200 in 1920. On the other hand, in 1921 the price had already fallen to 180 crowns.

The freight rates for Norwegian ports have also increased. From the eastern ports of Great Britain to the eastern ports of Norway 7.54 crowns

per ton was paid in 1914 ; in 1915 15.22, in 1916, 32.40 and in 1917, 176.10 ; during the war as much as 300 crowns was paid.

We do not give the prices of coal for Norway. They show no peculiarity that we have not already pointed out.

In the Norwegian report we find a remark which has a general bearing ; although the economic conditions under which navigation was carried on from 1914 to 1919 varied considerably, they may be considered as extremely favourable. However, in the second half of 1921 a reaction set in which gave rise to an unprecedented crisis.

This remark applies not only to Norwegian shipping but to that of all countries, because, whereas there were differences between neutral and belligerent countries during the war, once peace was concluded there was no further basis for such differences; accordingly all shipping is at present passing through a period of commercial depression.

Denmark and Germany supply no information with regard to their ports or mercantile marine.

Czecho-Slovakia was raised to the rank of a maritime nation by virtue of Article 363 of the Treaty of Versailles. Zones in the ports of Hamburg and Stettin have been assigned to it for a period of 99 years ; these are to be placed under the special régime of free zones and shall be used for the direct transit of goods coming from or going to that State.

In addition to these two free zones for direct maritime transport in the north, the Czecho-Slovak State is extremely interested in the commercial traffic on the Adriatic with which the Treaty of Peace assures to it communication by rail. Trieste particularly will serve as an outlet for part of its trade with the Far East. The Czecho-Slovak Government has therefore concluded a treaty with the Italian Government which assures to it the free use of the sheds and plant necessary for the transhipment of merchandise in the port of Trieste, not to mention coal depots and other facilities for direct transit.

Further, the Czecho-Slovak Republic will take advantage of every means to further the development of its ocean traffic on the Black Sea and of resuming communication with the countries situated on the coast of that sea, countries with which Czecho-Slovakia had already been in close connection during the war.

During the war Italy lost 267 steamships of a total dead weight tonnage of 1,046,386 tons. The present fleet (January 1st 1920) numbers 495 steamships of a total tonnage of 1,730,283 tons. We have no further data on the subject.

In Eastern Europe, Roumania has various ports on the Black Sea. The most important of these is Constanza, on the construction of which more than 100 million lei have already been spent. The equipment is especially adapted to the grain trade.

Repair work is in contemplation as well as the provision of plant necessary for maintaining a uniform depth of water in the docks, the upkeep of wharves and the increase of the capacity of the port. An expenditure of approximately half a milliard lei has been set aside for all these purposes.

There is also a scheme for a naval port on the Black Sea involving a supplementary expenditure of approximately 100 million lei.

The traffic of the port of Constanza has decreased considerably. The average of imports for the period 1910-1915 amounted to a total of 170,000 tons and of exports 1,200,000 tons. After the war — that is to say, during the year 1920 — imports of only 65,000 tons and exports of barely 13,000 tons were registered.

As the Danube is accessible to sea-going vessels for a length of 170 km. from its mouth, this section of it is used by a large number of ships going from the ports of Soulina, Tulcea, Galatz and Braila. It should be pointed out that 500 Roumanian or foreign vessels of an average tonnage of 2,000,000 enter annually by the Soulina mouth alone.

Roumania has an ocean passenger and goods service operating regularly on the Galatz-Constanza-Naples, and Constanza-Constantinople routes. Traffic on the latter line has also considerably diminished.

Before the war, the freight rate was approximately 10 lei per ton on the mail-packets on the Galatz-Alexandria line and 13 lei per ton on the cargo boats on the Galatz-Rotterdam line. After the war, freight on the Galatz-Naples mail line had risen to 260 lei, and on the Galatz-Atlantic line to 500 lei. The price of bookings for passengers is 28 times greater than before the war.

Roumania intends to purchase new steamships in order to extend the Galatz-Naples line as far as Marseilles and to resume the Constanza-Alexandria service; this will involve an expenditure of two milliard lei.

The natural harbour of Lithuania is Memel (Klaipeda), which affords access to the Baltic by the Kurisches-Haff. The restitution to the mother-country of this territory which has been detached from Germany will, as the Lithuanian report points out, prove of material assistance in the development of the port, especially after the building of the Sauliai-Memel and Kovno-Memel railway lines.

The most important port of Latvia is Riga. This is primarily a commercial centre for wood and grain, flax and hemp. We must also consider the ports of Windau (Wentspils) and Libau, (Leepaja). These ports, Windau in particular, were only slightly damaged during the war, and the Latvian Government is drawing up plans for the necessary repairs.

The most important port of Esthonia is Reval (Tallin), which, after having been one of the most important Baltic centres during the Middle Ages, was unable to maintain its former position under the domination of the Russian Czars. It should be noted that, once the Reval-Moscow line is built, the port of Reval will resume its rightful position, as a result of its proximity to Russia and the facilities it offers for trade with Western Europe.

Two years before the war, the Russian Government had decided to establish at Paljasaar, near Reval, a large naval base equipped with all the necessary installations. Esthonia intends to take advantage of this site to build a commercial harbour which will provide accommodation for 500,000 tons of shipping.

Esthonia possesses other secondary ports, which all require to be organised and enlarged.

This country, which has sea-traditions of long standing, has a fleet of 496 sailing and steam vessels with a tonnage of 33,821. Other ships are on the stocks. As everywhere else, the freight rates of Esthonian ports have undergone considerable increase but they began to fall again in 1921.

In 1914 the Greek ocean-going fleet numbered 474 steamships of a total tonnage of 830,000 tons and 884 sailing-vessels of a tonnage of 965,000 tons. During the war she lost 277 steamships of a total tonnage of 669,600 tons and 240 sailing-vessels of a tonnage of 18,000 tons. If we take into consideration ships which were newly acquired or built, the Greek fleet included at the beginning of 1921, 390 steamships and 11,000 sailing vessels of a total gross tonnage of 692,000 tons. It includes 200 cargo boats of a tonnage of 315,000 tons, which sail to foreign ports, especially to America, England and France.

Before the war the Greek merchant marine's most important traffic was in the Black Sea. (25 % of the tonnage leaving the mouth of the Danube flew the Greek flag.) Greece is confident that she will recover this traffic after the economic re-organisation of Russia and the resumption of the Roumanian export trade.

Among the American countries which replied to the questionnaire, Canada has a merchant service of some importance, which is largely employed in the service on the Great Lakes and the coasting traffic on the Atlantic and Pacific. The tonnage has increased from 649,759 tons in 1914 to 910,654 in 1920. The report does not supply any further information.

The republic of Haiti possesses 12 ports, of which the most important is the capital of the State of Port-au-Prince. In 1913 the total traffic which passed, through the ports was 1,194 vessels of a total tonnage of 2,276,765 tons, which in 1916 fell to 112 vessels only, of a tonnage of 420,474 tons. This decrease is due to the absence of the vessels belonging to the Hamburg-America Co., and the irregularity of the service of the Cie. Generale Transatlantique.

The latter has, however, resumed its former services, and there is every reason to expect that communications with Bordeaux and le Havre will recover the importance they had before the war. It is thought that the establishment of lines running between the ports of Haiti and the Mediterranean ports will make up for the absence of the German company.

The most important ports in Guatelama on the Atlantic are : Puerto-Barros, and on the Pacific, San José ; many lines with regular services call at these ports, but only one of them is in direct communication with European ports. The report expresses the wish that a direct line should be established between Barcelona and Puerto-Barros.

The general traffic of the ports from 1914 to 1919 underwent a slight decrease, as it dropped from 1,145,401 tons in 1914 to 1,110,105 in 1919 for incoming ships ; there was no change in the figures for outgoing ships : 2,240,000 tons.

The report supplies detailed information with regard to many Brazilian

Ports. These are, as a rule, well-equipped ports which have in no way suffered from the war. They are served by several regular lines, which are operated either by Brazilian or foreign companies.

The Chilian Government also devotes special care and attention to the upkeep of its ports. Considerable improvements have been carried out, and other schemes are in contemplation. The organisation of the ports of Talcahuano and San Antonio is complete, and that of Valparaiso will be finished shortly. Buildings are in course of construction in the port of Antofogasta. Further, there is a plan for the improvement of the ports of Arica and Iquique in the north, of Constitucion and Llino in the Central region, of Lebu in the coal district and finally of Puerto-Saavedra and Valdicia in the southern region.

In 1918, apart from coasting traffic, approximately 6,000 vessels of a tonnage of over fifteen million tons entered or left the ports of the Republic.

Chilian maritime commerce suffered considerably during the war from the shortage of shipping, as well as from difficulties in obtaining supplies of fuel, but the situation is again becoming normal in this respect.

China has numerous ports at her disposal, but we need only consider open ports *i.e.* those to which foreign trade is admitted as the result of treaties concluded with certain Powers who are, for this reason, known as "Treaty Powers".

The open ports are: Canton, Kia-Tchang, Tientsin, Lunkon, Che-Fu, Shanghai, the ports of the Yang-Tse and other secondary ports.

Navigation under the Chinese flag shows little development owing to the absence of laws for the protection of shipowners. The Government is at present taking steps to remedy this defect. The Chinese Merchant Fleet has 31,334 tons of shipping for long-distance voyages.

During the war Japan greatly increased her merchant service. In 1913 she had, 2,243 steamships and 9,151 sailing vessels of a total gross tonnage of 2,268,587 ; in 1919 the number of steamships had increased to 2,879 and that of sailing ships to 13,781 — a total tonnage of 3,785,683 tons.

Although we are unable to give the exact figures, we are in a position to state that this increase continued in 1920.

The building capacity of Japanese shipyards was also considerably increased during the war ; while before the war they could only build 17 ships of a 1,000-ton displacement annually, they were able in 1917 to build 157 of 5,000 tons. The general stagnation which prevailed after the Armistice dealt a very heavy blow to the Japanese shipbuilding industry. The Japanese shipbuilding yards have specialised in building vessels of heavy tonnage.

In 1913, several regular lines were already running under the Japanese flag. During the war, the Japanese took over the running of several lines which had been abandoned by other countries, so that the number of regular services at present kept up by Japanese ships is very considerable. According to the report, some of these lines are to be discontinued, partly because the crisis has reduced the shipping traffic and partly because in

other countries shipping activity, which had been interrupted during the war, is once more being resumed.

Before the war, the sphere of action of the Japanese Mercantile Marine was limited to the adjacent waters, to the coasts of Japan and China and to the Indian Ocean. Under pressure of war necessities, the Japanese merchant fleet extended its operations to European waters, and to the Atlantic, where it rendered valuable services.

Since the War, Japan has continued to take an active part in this new sphere. The Japanese merchant service had to cope with an enormous amount of traffic ; as the war gave rise to an increase in the commercial demands of Europe on the Far East, the Japanese fleet effected the greater part of the transport which had thus become necessary.

As a result of the disorganisation of the Trans-Siberian Railway, and the fact that European vessels had ceased to sail in the waters of the Far East, passengers proceeding to Europe, America and Australia travelled in large numbers by Japanese lines.

In 1916, there were such difficulties in the passenger traffic that, after purchasing a ticket, it was necessary to wait several months to obtain a passage on a Japanese vessel.

During the war, the price of passages was not increased by more than 50 %, because the Japanese Government, as a rule, subsidised regular steamship services.

The increase in freight rates was a little less marked than in the case of the European merchant services. Thus, in 1912, the rate for cotton from America to Japan was $0.40 per ton and in 1917 $1.50.

In Japan, the cost of vessels, which is the chief factor in determining freight rates, underwent the following increase : in 1913, a ship of heavy tonnage cost approximately 100 yen per ton. A ship of medium or small dimensions, 125 yen ; in 1917 the prices had risen to 750 yen in the case of large vessels, 700 for medium vessels and 550 for small vessels.

In Persia, there is freedom of navigation for all flags in the Persian Gulf, on the Shatt-el-Arab, on the Karun and on the Caspian Sea. (The rights of Persia on the Caspian Sea are laid down in the new Commercial Treaty concluded with Russia.)

Navigation on the Caspian Sea is carried out chiefly by Russian vessels with *ports d'attache* at Astrakan and Baku. The most important Persian port on the Caspian is Enzeli, which serves the regions of Gilan, Teheran and Central Persia. Traffic on the ports of the Caspian has remained in its pre-war condition ; that is to say, it fluctuates about 800,000 tons of arrivals and sailings.

The ports on the Persian Gulf are chiefly visited by English vessels : Bushire is the most important. Before the war, the total shipping traffic (arrivals and sailings) was approximately two million tons ; in 1918 it increased to 2,290,000 tons, then fell to 1,565,000.

The information in the reports of the various States is not sufficient to give us a general idea of the activities of merchant shipping in the whole world. After the abolition of wartime restrictions, this activity began to show itself under conditions of complete liberty and unrestricted compe-

tition. We must, therefore, now give some information derived from other sources (Lloyds Register and various publications).

We have already pointed out that the losses suffered by merchant shipping during the war had been balanced by the impetus given to shipbuilding ; thus the gross tonnage of the whole world, which in 1914 amounted to forty-five million tons of steamships and 3,500,000 tons of sailing vessels, in 1919 had already reached a total of 51 million tons and in 1921 a total of 59 million tons of steamships and 3 million tons of sailing vessels *i.e.* sixty-two million tons in all.

We must note two technical points of a general nature : the marked decrease of sailing vessels and the increase in the displacement of ships. We have already seen that the fleet of sailing vessels had decreased by half a million tons. As regards the displacement of ships, we learn that in 1914 steamships of a gross tonnage of more than 6,000 tons numbered 1,236, while in 1921 they numbered 2,097. The world's shipping has been to a great extent renewed. Many old vessels were kept in commission during the war, but have been scrapped since the Armistice. More than one-third of the present merchant fleet has been built within the last five years.

The order of the countries of the world from the point of view of the importance of their fleet has undergone considerable alterations. The German and Austro-Hungarian fleets have disappeared. England still occupies the first place, but only possesses 37 % of the existing steamships as against 45 % in 1914. The United States have increased their fleet ; in 1914 they possessed 9 % of the total tonnage of the world ; they now possess 27 % of this tonnage.

Japan, France and Italy have also increased their fleets. In the period which followed the Armistice, traffic has steadily declined, while the available supply of vessels has been increased by new units which were laid down during the war. Freights which in 1920 had remained at the fantastic rates reached during the war, as we have seen, began to fall in 1921, and at present are only about 50 % above those of 1913 ; these figures must, however, be accepted with the usual reservations.

But while freight rates were falling, working expenses remained high ; many ships are laid up and no new vessels are under construction. Ocean shipping is going through a crisis which, as we have already pointed out, is the exact opposite of that through which the railways are passing.

III.

MOTOR AND AIR TRANSPORT.

1. *Motor Transport.*

The marked development in motor transport is a typical example of the progress brought about in certain spheres by the War.

We shall reserve remarks of a general nature for the end of this report and, in the first place, summarise the information supplied by the reports in the usual order.

The United Kingdom has no official statistics regarding mechanically propelled vehicles, before, during and since the war. The only information we possess is that these vehicles must have numbered 700,000 in 1920. The development of motor traction may be approximately estimated by the ratio it bears to petrol imports. If we represent the quantity of petrol imported in 1913 by the index number 100, the index numbers for 1919 and 1920 are 125 and 169 respectively.

According to the English report, the development of motor transport has been furthered by various factors — the sale of many vehicles from army stocks, the higher efficiency and improved construction which was the result of experience gained during the war ; finally the increase in the cost of transport by rail, which has considerably widened the field open to the competition of motor transport.

There are at present regular motor-bus services on most of the English highways. Public conveyance by motor has undergone a considerable increase and covers long distances. These services are patronised partly by a section of the public recruited from the railway and tramway passengers and partly from a new class of traveller.

In England, motor transport has rapidly become popular with the general public, which prefers it to railway transport, although the latter is slightly cheaper. The possibility of collecting and delivering goods at a given address, the dispensing with packing and the elimination of risk of theft and frequent delays have induced many firms to effect their transport by motor.

At present certain large organisations are attempting to overcome the disadvantages arising from the existence of an excessive number of motor transport firms and from the resulting empty journeys. For this purpose clearing houses have been established which endeavour to procure loads for the return journey.

The high cost of petrol is calculated to promote the use of steam or electricity-propelled vehicles. The former of these is especially well- adapted to heavy models where speed is not essential. The other is specially suited to meet the requirements of delivery services, and of loading and unloading

in warehouses, where precautions against fire have to be taken. On the other hand, until electric accumulators have been perfected, they will not be suitable for long journeys nor for transport on rough roads.

In 1914 France possessed 100,000 motor vehicles; their number was more than doubled in 1920. Lorries in particular have increased by approximately 8,000; at present there are not less than 95,000.

Motor lorry transport, reckoned in kilometric-tons, has increased by approximately 850 %, although animal-drawn transport has only decreased by 12 to 15 %. Therefore, a large amount of transport has passed from the railways to the roads.

According to the French report, the success of the motor is to be explained as follows: during the war, large numbers of men became familiar with this means of locomotion and aquired a taste for it. The sale of the army stocks and the persistence of the railway crisis contributed to bring about this result.

The French Government makes a grant of 5 millions per annum (1921 Budget) to public motor services which undertake the daily transport of passengers, luggage and mails.

In the Netherlands the use of motors for passenger traffic has also increased as a result of the liquidation of the stocks of the belligerents and the rise in railway tariffs.

In Belgium and Spain, motor transport have undergone a considerable increase.

Sweden affords a striking example of the extension of motor traffic. In 1907, she only possessed 662 motor-vehicles; in 1919 she had 8,506.

Germany proves an exception to the general rule. On February 1st, 1920, there were in the whole of the Reich only 32,450 touring cars as against 60,876 in 1914. We have no information regarding motor lorries. The extension of motor traffic in Germany is in every respect hindered by the fact that she is unable to obtain certain essential raw materials. In view of the deliveries she has to make, she has only been able to keep small quantities of German benzol for home consumption; moreover the price of inner and outer tyres remains extremely high. She also encounters obstacles to the circulation of her vehicles beyond the frontiers, because the States which are adjacent to Germany have not all adhered to the International Automobile Convention (October 11th, 1919) and require excessive deposits at the customs before allowing cars to enter their territory.

In Austria similar reasons have militated against the extension of motor transport.

Hungary has witnessed a reduction in the number of motor vehicles in circulation, which has decreased from 3,000 before the war to only 1,500 at the time the report was drawn up.

Motor mail services, which were frequent before the war, have been abolished.

Czecho-Slovakia possesses approximately 5,000 motors of every description. The transport of goods by motor has begun to develop since the war.

The Italian report supplies no information regarding the development

of motor transport, although this development has also been considerable in Italy, for the same reasons which apply to the other countries.

The production of petroliferous motor spirit on a large scale constitutes a factor which is extremely favourable to the development of Roumanian motor transport. On the other hand, the state of the roads, which are in an extremely bad condition, places her at a disadvantage. Further, she has no home motor industries, and moreover is without repair shops and trained chauffeurs. The import of cars is on the decline. The Government is investigating the questions relating to the development of motor transport

In Bulgaria motor services are very slightly developed.

In Esthonia motor transport has not hitherto been carried out on a very large scale. The Government intends to establish motor services to make up for the inadequacy of the railways ; but the bad condition of the roads hinders the carrying out of this scheme.

The reports of the American countries give no detailed information regarding motor transport ; they only state that in Chile and Bolivia the use of motors is steadily increasing.

In Asia, Persia, which is badly supplied with railways but fairly well provided with good roads on which passenger cars and motor lorries are already circulating, would be extremely well suited for the development of motor transport. There are no regular public services as yet, but the formation of such services is being considered. It is an undoubted fact that in Persia motoring will be furthered by the existence of considerable stocks of petrol which have hitherto only been partially tapped.

The extended use of motors is one of the characteristic results of the war in the sphere of transport ; if the war had not thrown an enormous quantity of low-priced vehicles on the market, the present development of motor transport would not have geen possible. As a matter of fact the chief obstacle to the development of mechanical transport on ordinary roads before the war was the high cost of motors.

Moreover, the disorganisation of the railways had considerable influence on the development of motor transport and more especially on the transport of goods. It is difficult to prove that motor transport costs less than transport by rail even to-day when railway rates have been increased, especially as the cost of motors and petrol is still high ; there can, however, be no doubt that when we consider the great number of thefts and the delays which take place on the railways, transport by motor lorry guarantees a more rapid delivery and less risk of damage. In order to profit by such advantages the public has no hesitation in paying higher prices.

It may be asked whether, in view of the reorganisation of the railways, motor transport will continue to make the same progress. This is extremely doubtful, for in normal times the railways can offer their services at lower rates. It should, however, be noted that motor traffic will keep the ground it has gained even if it makes no further conquests, particularly in the sphere of short-distance traffic, as economy in loading and unloading of trucks forms a large item in transport of this nature.

2. *Air Transport.*

As regards air transport, the report which supplies the best information is that of the Netherlands, where the question has been most throughly studied. Naturally we are dealing with civil air transport, as the technical improvements in aircraft for military use does not fall within the scope of our enquiry.

In August 1919 the first exhibition of air transport was held at Amsterdam under the distinguished patronage of the Government and the municipality. Its aim was to show the general public that it was possible to employ aircraft for transport ; several Governments took part in it and it was a great success.

In November 1919, the Government set up a committee for the study of questions relating to civil aviation.

The Government has given further proof of the interest it takes in these matters by placing the aerodromes of Shiphol and Schellingwoude, which had formerly been used for military aviation, at the disposal of private aviators. These aviation grounds will gradually be equiped with the necessary installation for civil air transport at the expense of the State, and suitable landing-places will be made at points situated on the air routes which terminate at these two aerodromes.

A provisional agreement has been concluded with England and Germany which provides for the regular exchange of meteorological information and reports by wireless. Grants have been made to a private company for aerial navigation.

Legislative measures dealing with air transport are being considered. There are at present daily services for passengers and mails between Amsterdam and London and between Amsterdam and Hamburg-Bremen. The latter line connects with the Bremen-Berlin and Hamburg-Copenhagen lines. The services which were suspended in November 1920 were resumed in the spring of 1921.

The Czecho-Slovak report informs us that the Prague-Paris air line was established in 1920 (a distance of 900 kilometres, which is covered in six hours) and that it is operated by a private company subsidised by the State. This service, which was inaugurated in September 1920, has had to be suspended during the winter. In 1921 the Prague-Warsaw line, 500 kilometres, was established. A Prague-Berlin and Prague-Vienna international line and a Prague-Bratislava-Kosice national line are in contemplation.

Roumania also attaches much importance to civil aviation, and in her report supplies us with statistics and information regarding the plans she intends to carry out ; these plans include the construction of a certain number of aerodromes with a view to operating 3,200 kilometres of lines. Air ports will be made at Bucharest, Galatz, Chisinau and Craiova at an estimated cost of 335 million lei. The annual working expenses are estimated at 78 million lei.

Some idea may be formed of the tariffs which will be adopted from

the fact that a ticket from Bucharest to Paris would cost 3,000 francs, that the transport of merchandise would cost 30 francs per kilogramme, and that of letters 13 francs per 20 grammes or fraction of 20 grammes. The Government subsidises the company which operates these lines. A law dealing with the establishment and working of air navigation lines has been passed.

The amount of information contained in the reports is obviously insufficient to allow us to form a complete and satisfactory estimate of the state of air transport. These reports contain rather information regarding schemes which are being considered than services which have actually been established and are running regularly. It is clear that we are passing through a period of expectation or perhaps of uncertainty. The war gave rise to an extraordinary development of, and an exceptional technical improvement in, air transport; but hitherto we have not had sufficient experience to be able to state definitely that aviation will be suited for civil transport on a more or less large scale. It is probable that difficulties of an economic nature will be added to difficulties of a technical nature, so that only a very limited section of the public will be able to avail itself of this transport, the cost of which will always remain extremely high. Therefore this kind of transport will not lend itself, at any rate for a long time, to the introduction of regular and continuous public services, for such services must be able to rely on firmly established currents of traffic which are not liable to very excessive fluctuations.

F. TAJANI.

GENERAL SCHEME OF THE STATEMENT REVIEWING THE TRANSPORT SITUATION.

(For reference.)

RAILWAYS.

Material.—Condition of lines and railway engineering works ; urgent repair work ; works necessary for complete restoration ; proposed improvements and construction of new lines ; condition of rolling-stock.

Traffic.—Number of trains running ; passenger traffic ; tonnage of goods carried.

Tariffs.—Increase in passenger and freight rates.

Fuel.—Total consumption of each kind of fuel ; sources from which fuel is obtained ; cost price per ton.

General financial situation of the railway systems.

OCEAN AND INLAND NAVIGATION.

Material.—Condition of ports ; congestion ; condition of waterways ; urgent repair work ; work necessary for complete restoration ; proposed improvements and construction of new ports and waterways.

Traffic.—Merchant services ; passenger traffic ; tonnage of goods carried.

Freights.—Increase in rates for passengers and goods.

Fuel.—Total consumption of each kinn of fuel ; source from which fuel is obtained ; cost price per ton.

General financial Position of Shipping.—Ocean navigation ; inland navigation.

DEVELOPMENT OF MOTOR TRANSPORT.

DEVELOPMENT OF AIR TRANSPORT.

STATEMENTS

submitted by the States which took part in the First General Conference on Communications and Transit.

AUSTRIA.

Preamble.—A comparison of the state of communications and transport in Austria before and since the war would require a common basis both from the point of view of public law and also of politics. No such basis exists, seeing that the Austrian State, which has arisen out of the dismemberment of the Austro-Hungarian Monarchy, and which was forcibly created by the Treaty of St. Germain-en-Laye, did not exist before the war.

But if the traffic of the Austrian Republic is compared with that of the Austrian part of the former Austro-Hungarian Monarchy, no greater contrast can be found than that subsisting between the former State, whose organisation was based on a solid foundation of age-long development under sound economic conditions, and the State formed by the Treaty of St. Germain—a State whose economic impotence, so emphatically but fruitlessly predicted by the Austrian Peace Delegation, has, during the two years of its existence, been proved in a more clear and more terrible fashion every day.

Such, then, were the economic conditions to which the system of communications in the former Austrian State was adapted. The railway policy of the former Austria had aimed at establishing, by the creation of a good communications system, a balance between the producing and consuming regions of the Empire, at directing farming and mining products —particularly coal—towards the great consuming centres and the industrial factories, and making possible vast commercial activity between Austria and the neighbouring States. For this purpose a railway system was conceived in the form of a series of lines running north and south, establishing connections between the regions of Bohemia, Moravia, Silesia and Galicia—regions rich in farming and mining products—and the Alpine countries, which are almost devoid of these products ; all these lines converged on the great consuming centre, the capital, Vienna, and at the same time connected this age-long centre of European commerce with the chief places on the frontier and, beyond the frontier, to the great German seaports, with which the Monarchy carried on extensive commercial relations. While the railways running from west to east, and the great navigable waterway, the Danube, provided means of transit from the countries of Western Europe to the Balkans, the lines running South—the carrying capacity of which had considerably increased at the beginning of the present century

owing to the construction of a second line towards Trieste— conveyed the products of the local industries (which were in a high state of development, particulary in the country of the Sudetes) to Trieste, the only commercial port belonging to Austria. It was partly due to the excellence of her railway system, which was adapted to meet the peculiar economic needs of her territory, that the former Austrian State owed its reputation as a country capable of rivalling the other economically important States and became recognised by them as a competitor.

With the dissolution of the Austro-Hungarian Monarchy, this territory, which was an economic entity, was arbitrarily dismembered, without any reference to previously existing economic relationships. The new Austria is nothing more than a poor mountainous country whose farm produce scarcely suffices to support its population of about six millions for three months in the year, and which cannot even produce, within its own territory, one-tenth of the coal which it requires. Moreover, the country is badly provided with raw materials, and the little which remains cannot, owing to lack of coal, be used for manufacturing purposes.

With this destruction of the unity of Austria's economic territory was coupled the destruction of her railway system. In this process great attention was paid to the political, strategic, and economic desires of neighbouring States, but the vital interests of the Austrian State were neglected, and our railway system was in consequence mutilated so as to prevent these lines from being worked in such a way as to satisfy the requirements of traffic and our economy needs. Of the numerous railways which deal with the traffic from the frontiers to Vienna and beyond, only the lines running from west to east (Buchs and Lindau-Vienna, and Salzburg and Passau-Vienna) have remained unaffected by the alteration of the frontiers, and have thus remained intact. But these lines cross districts which, owing to their natural conditions, are of inferior value as regards farming and industrial produce, and which are of no importance except for international transit. Moreover, they are mountain railways, the operating of which is particularly costly. Of all the other main traffic routes—particularly those running north and east—only worthless fragments, varying in length from 41 to 164 km., remain in possession of the new Austria. These are the sections of the main lines which worked the traffic as far as the frontiers of the former Austria, via Gmund, Znaim and Grussbach to the north-west, and via Lundenburg to the north and north-east. These lines have now been so mutilated by the fixing of the frontier that all the above-mentioned stations, (which are, moreover, the first of any importance after leaving Vienna, and which are provided with the equipment and plant necessary at exchange stations, are situated in foreign territory and are therefore no longer under Austrian administration. The same holds true of the State railways and of the Sudbahn, which runs southwards. These lines have been cut off by the frontier immediately before the important junction stations of Tarvis, Assling, Unterdrauburg and Marburg, which were equipped for this purpose. As a result of the loss of these stations, all the Austrian sections of these important lines are left without transit stations situated in their own territory, and suitable,—on account

of their position, plant and equipment—for carrying out the systematic collection and distribution of goods when they arrive, in accordance with the requirements and interests of our traffic and our economic system.

The consequence of the unnatural delimitation of the frontier, which arbitrarily destroys the economic entity and the unity of technical working, not only prejudices the interests of Austria, but also forms an insurmountable obstacle to the development of traffic on the Austrian railways.

On the Sudbahn, the frontier of Austria, as fixed by the terms of the Treaty of Peace, has brought about a chaotic situation. By means of two lines running north and south (Vienna-Trieste (Munich) and Kufstein-Ala (Venice), which are united by the line from Marburg to Franzensfeste, this railway system connected two important centres for European traffic directed towards the Adriatic Sea. Without taking into consideration the important economic interests which it is called upon to serve, this system has been broken into several sections, each under a different administration. Thus, the most important line—Vienna to Trieste—is composed of an Austrian, a Jugo-Slav and an Italian section. Each of these sections applies a different scale of rates, published in the language and reckoned in the currency of the State in which the section lies. The same holds good on the line from Marburg to Franzensfeste, which formerly served the traffic between Hungary and the Balkans and also between South Germany and Switzerland. This line has been broken into three sections, and the traffic, which was formerly very heavy, has now given place to insignificant local traffic.

Finally, the second Sudbahn line, running from north to south, from Kufstein to Ala, has been cut in two by the frontier. The transit from one system to the other has to be made high up in an Alpine pass, subject in winter to the most unfavourable climatic conditions.

Similarly, the dismemberment of the Northern railway from Vienna to Oderberg is gravely prejudicial both to the interests of Austrian traffic and trade and also to international traffic. The chief object of this line was always to serve the direct traffic from north to south, particularly the coal traffic. The former Austrian State recognised the importance of this line, which was intended for special traffic, and which represented an independent organisation. The Northern railway was purchased, and, notwithstanding its incorporation in the railway system of the Austrian State, the latter formed it into a special organisation, with its own balance sheet, for the purpose of assuring connections between its various lines. At present this line is composed of three sections, the northern part of which has passed into the hands of Poland, the central and largest part to the Czecho-Slovak State, while the section Vienna–Bernhardstal (the length of which does not exceed 76 km.) has been allocated to Austria.

Owing to this dismemberment, each of these three trunk lines has lost importance in its own territory for its own national State, for the fixing of the frontiers of the national States (which extend chiefly from west to east) has created, for political national reasons (especially in Czecho-Slovakia and Poland), a desire to give preference to other lines more useful, from an internal point of view, within each of these new States. The former main railway line of the monarchy has been neglected by these new States

and has thus lost in importance. Its value to international traffic, however, has increased as a result of the political changes, and, once normal economic relations are restored, it can be of service to a yet larger number of States. It is essential for Austria that there should be an international administration of the traffic on this line, binding upon all the interested States. It is only through such a solution that Austria will be able to find a satisfactory guarantee for the unhindered transport of coal from the Silesian mines, which forms an indispensable condition of the existence not only of her railways, but of her whole economic life. The sad events of the last two years following the dissolution of the Austro-Hungarian Monarchy (during which the supply of coal from Czecho-Slovakia and Poland either ceased entirely or diminished to such an extent that the Austrian railways were compelled on several occasions to suspend traffic for weeks at a time, or to limit it drastically), constitute the most convincing argument for rendering Austria as far as possible independent of the neighbouring States in respect of her supplies of foreign coal.

The difficulty in re-establishing a direct and mutual traffic between railways cut through by the new frontiers — a difficulty which particularly affects international traffic — is rendered sufficiently evident by the fact that at least 15 such frontier points will have to be made the subject of agreements with the new States in respect of the working of railway junctions. Austria will from the outset enter upon these negotiations under disadvantageous conditions, owing to the fact that the new frontiers, wherever they cross the old through-routes, have without exception been fixed in such a manner that the nearest stations which are suitable, on account of their plant and equipment, for transit and changing operations, are on foreign territory and therefore beyond Austrian control. Any consideration given to Austrian interests will depend therefore in each case on the goodwill of the other party — a goodwill which, as experience has hitherto shown, will not always be forthcoming. It is therefore probable that in many cases an appeal to the arbitrator provided for under Article 319 of the Treaty of St. Germain will be inevitable. Our railway system is thus absolutely deprived of natural outlets. It depends almost entirely on foreign countries for its coal supply, so that the very possibility of working is uncertain, owing to the interruptions in the delivery of supplies which have been contracted for, and owing to transport hindrances on foreign railways; and yet it is on this system that the Treaty of St. Germain has imposed heavy burdens in the form of unilateral obligations in respect of most-favoured-nation treatment and other privileges.

Our freedom to adopt a tariff and commercial policy — a freedom possessed by every civilized State and only renounced voluntarily on terms of complete reciprocity such as are provided for in a treaty — is denied to us by intolerable restrictions which prevent us from taking the measures in the field of tariff and commercial policy which are essential for the development and rebuilding of our shattered economic life.

By the loss of her coast-line, Austria has been completely cut off from maritime navigation. As regards navigation on the Danube, Austria has lost her predominant position in the Danube traffic — a position represented

by the great enterprises of State navigation — and she has fallen to the level of an unimportant river State whose sphere of influence is limited to a Section of the Danube which is commercially of little importance.

Austrian transports have shared the economic ruin of the whole Austrian State. The dismemberment of her railway system, the incessant lack of coal and her heavy international obligations weigh so heavily upon Austria that she cannot anticipate any restoration of her transport system ; the same fate is overtaking the whole life of the Austrian State which was created by the Treaty of St. Germain, and which was in a similar way condemned to economic death.

The communication system of such a State could not be compared to an organisation such as that of the former Austrian State, which was founded on sound economic bases, and was capable of development.

With these reservations, we submit, for purposes of information, a statement drawn up in accordance with the scheme.

I

RAILWAYS

A. Material.

1. *Length of the Austrian Railways.*

	Austrian Empire in 1913.	Republic of Austria 1920.
	Kilometres.	
Length of railway lines constructed (excluding light railways, various rack railways, tramways, funicular railways, etc.).	22,880	6,326
Worked by the State.	18,879	4,290
Worked by private enterprises. . .	4,001	2,036
Lines worked by the State.	18,879	4,290
Directly	13,837	3,478
Indirectly.	5,042	812
The whole of these lines include the following :	22,880	6,326
Main lines.	13,891	3,882
Local lines.	8,989	2,444
Lines with two or more tracks.. .	3,645 (15.9%)	1,518 (24.0%)
Narrow-gauge lines.	1,457 (6.4%)	785 (12.4%)

2. *Condition of the Lines.*

The condition of the lines greatly deteriorated during and after the war. In spite of the difficulties — which nevertheless were only surmounted at the cost of great effort — such repairs as were indispensable for safe working have been carried out. These repairs were rendered all the more difficult and costly because the Austrian railways are, for the most part, mountain railways, and therefore require the utmost care for the maintenance of the permanent way and superstructure.

The curves and gradients of the lines worked by the State were as follows :

Curves.

The total length constructed comprises :

Straight track	62.0 %
Curves up to 1,000 metres radius	5.5 %
From 1,000 to 500 metres radius inclusive	9.4 %
» 500 to 400 » » »	4.1 %
» 400 to 300 » » »	8.8 %
» 300 to 200 » » »	8.6 %
» 200 to 100 » » »	1.6 %

Gradients.

On the level	17.0 %
Slopes and gradients up to 1 %	4.7 %
From 1 % to 2.5 % inclusive	14.2 %
» 2.5 % to 5.0 % »	21.0 %
» 5.0 % to 10.0 % »	22.4 %
» 10.0 % to 12.5 % »	4.8 %
» 12.5 % to 16.7 % »	6.4 %
» 16.7 % to 25.0 % »	6.1 %
» 25.0 % to 23.3 % »	2.8 %
» 33.3 % to 50.0 % »	0.2 %
» 50.0 % »	0.4 %

At present certain sections demand more extensive repairs, particularly as regards the track, but there are not, however, many of these sections. To meet the needs of future international traffic, a good deal of work on the track and superstructure will need to be accomplished in the course of the next few years, in view of the fact that, owing to the lack of necessary funds and to the difficulty of obtaining material both during and since the war, all repairs which were not abso-

lutely indispensable for safe working have necessarily been postponed, including nearly all works for the purpose of increasing the carrying capacity of the railways in respect of axle loads and speed.

The damage directly caused by the war has already been repaired so as to render possible the regular working of all the lines. Some of this damage has not yet been finally repaired, especially on the Klagenfurt-Rosenbach line and on the portion of the main line of the Sudbahn situated in Carinthia.

3. *Improvements.*

The new delimitation of the Austrian frontiers makes it necessary to enlarge the Austrian railway stations, which are destined to serve as frontier stations, in conformity with agreements made with the adjacent countries: Czecho-Slovakia, the Serb-Croat-Slovene State, Italy and Hungary. In order that these stations may meet the requirements of transit and frontier services, it will be necessary to undertake some fresh construction works and to effect other improvements.

Again, the disruption of the economic unit represented by the former Austria into a number of independent organisms has led to modifications in the policy adopted in matters of commerce and traffic in these States, so that traffic will now develop over new lines, which will have to be adapted to meet the new conditions, so that their capacity may be in proportion to traffic requirements.

The urgent necessity of repairing the rolling-stock — these repairs having been neglected during the war owing to the lack of material and labour — makes it necessary to develop the workshops of the State railways with a view to increasing their output.

The States which were formed out of the fragments of the Austro-Hungarian Empire, or to which portions of its territory were ceded, dismissed a large number of former employees of the Austrian State railways on the ground of their German nationality. These persons came into the territory of the Austrian Republic; the provision of accommodation for them involved relief work on a large scale by the housing authorities, the difficulty being all the more acute because there was a very serious lack of dwellings in all parts of Austria, owing to private building having been suspended during the war.

During the war — *i.e.*, for nearly five years — and even during the years which followed it, it was found impossible to improve the railway system in a manner corresponding to the requirements of passenger and goods traffic. The works undertaken with this object before the war have, for the most part, had to be postponed.

In view of the present fabulous price of labour and building materials — which are now fifty or sixty times above the pre-war prices — and in view of the deplorable situation of the Austrian State finances, there is little probability of the work projected being carried out in the near future, particularly as the expense (which is in proportion to the reduced length of the system *i.e.*, one—quarter of the sum allotted for the former system) would amount to about two milliard crowns, making allowance for the decreased value of our money.

At present it is not easy to see how the Austrian State is to provide means even for indispensable construction work, for the development of new frontier railway stations, and for increasing the capacity of certain lines, which will acquire great importance owing to the new traffic orientations.

The same reasons will, for a considerable time, prevent the execution of an extensive programme for the construction of new lines, which had been drawn up before the war, but which has not been carried out.

4. *Electrification.*

On the other hand, the Austrian State Railway authorities are seriously considering a scheme by which they hope to effect a considerable improvement in the difficult situation in which the working of these railways and their whole economic system is at present involved owing to the lack of coal. This scheme consists in the electrification of the State Railways.

As has already been pointed out, the fixing of the frontiers of Austria deprived her of political control over the coal districts, and rendered her, for all time, completely dependent on foreign countries as regards her coal supply. The desire to alleviate the extreme hardships under which the traffic of the new State laboured from the very first months of its existence, led to a conviction that one of the most urgent tasks, from the point of view of economy, was to replace the system of steam traction on the Austrian railways by electric traction, making use of natural forces, *i.e.*, water-power. Accordingly, at the beginning of 1919, the Austrian Government commenced preparatory works with a view to the electrification of the State railways. It was proposed to begin by the conversion of the Arlberg line, which is specially adapted for electrification, owing to the heavy traffic it carries, its steep gradients, and the large reserves of water-power available in its district.

The first step towards the realisation of this scheme of electrification was the law on " The Introduction of Electric Traction on the State Railways of the Austrian Republic ", which was passed in July 1920.

This law provides for the electrification, within a period of construction of five years, of the Salzburg — Innsbruck — Brégenz — Buchs railway, which is one of the lines carrying the heaviest traffic in the direction from west to east; the next line to be converted was the Schwarzach—St. Veith—Spittal—Millstattersee section of the Tauern railway in the direction from south to north; and next the Salzkammergut railway from Steinach—Irdning to Attnang-Puchheim. The electrification of the Salzburg—Brégenz line will be followed by that of the Vienna—Salzburg line, in order that the whole traffic route from east to west may be worked as soon as possible by electric traction.

It was decided to begin with the Arlberg line, because the coal for that line has to be carried over the longest distance, so that the reduction in the cost of traction will be very considerable. It is to be hoped that it will be possible to institute electric traction on the line west of Innsbruck early in 1922, and that this form of traction will be in force on the whole Arlberg line at the beginning of 1923.

5. *Rolling-stock.*

I. *Situation before the War.*

(Entire Railway System of the Austrian Empire.)

	State Railways.	Private Companies.	Total.
Locomotives	6,192	1,333	7,525
Passenger coaches	12,255	2,868	15,123
Mail vans and service wagons	4,466	884	5,350
Closed goods trucks	45,077	9,500	54,577
Open goods trucks	66,992	24,236	91,228
Tank wagons	377	5	382
Total	129,167	37,493	166,660

II. *Present Conditions.*

(Railways of the Austrian Republic.)

A. Originally acquired.

	Locomotives.	Wagons.
Stock purchased by the State railways	140	3,415
Wagons hired by the State railways		290
Wagons privately owned but incorporated in the stock belonging to the State railways		1,670
Total A.	140	5,375

B.—Portion assigned to Austria out of the pool of locomotives and wagons of the former Imperial and Royal Austrian railways, of the Royal Hungarian State railways, and of the former Imperial and Royal Military railways.

The rolling-stock in the possession of the Imperial Royal Austrian railways, the Royal Hungarian State railways, and the former Imperial and Royal military railways, at the time of the dissolution of the Austro-Hungarian Monarchy, consisted of :—

12,300 Locomotives.	24,500 Passenger coaches.
	8,500 Mail vans and service wagons.
	110,000 Closed trucks.
	140,000 Open trucks.
	283,000 Vehicles in all.[1]

[1] The final number of these wagons will depend on the requisitionment of wagons, according to their distinguishing numbers, which, in accordance with the wishes of the allocation Commission, was carried out in all States formerly part of Austria-Hungary on Sept. 11th, 12th and 13th 1920; exact statistics are not yet available.

This total will be allotted by the Allocation Commission, established by virtue of Article 318, para. 3, of the Treaty of St. Germain, to the various States forming part of the former Austro-Hungarian Monarchy.

	Locomotives	Wagons
Austria has definitely received from this source,	935	
and out of a total of 54.736 wagons distributed up to now		11,409
Total B.	935	11,409
In consequence, the Austrian State railways now possess a total (A + B) of	1,075	16,784

In addition to these, there are still 1,225 locomotives formerly belonging to the Imperial Royal Austrian railways which have not yet been definitely distributed.

This total of 2,300 locomotives barely suffices for the needs of the Austrian State railways.

Including the principal railway companies, Austria has about 2,900 locomotives at her disposal.

B. Traffic.

1. *Running of Trains.*

Passenger traffic on the Austrian State railways. Present conditions compared to those prevailing prior to the war and to the period immediately following it.

(See following pages.)

I. Express Trains.

a) International Express.

The Summer time-table for 1914 (before the war) contained the following services (in both directions).	Period immediately following the war.	The present time-table (January 1921) contains the following services (in both directions).
One daily " train de luxe " (Orient Ostend-Express) : Constantinople and Bucarest - Budapest - Vienna-Wels. From this point one section *via* Salzburg - Munich - Strasburg, to Paris, another *via* Passau - Frankfort-on-Main to Ostend and Holland.	Immediately after the war all international passenger traffic was completely suspended.	One " train de luxe " three times per week : Vienna - Salzburg - Munich - Strasburg - Paris.
Two express trains daily : Vienna-Selzthal-Innsbruck-Buchs-Zurich-Bâle-Paris.	The only international express train running was the " Military Entente Train " which was used exclusively by the Entente, and which merely crossed Austria : Paris - Zurich - Innsbruck - Vienna - Lundenburg - Oderburg-Warsaw with a branch line from Linz *via* Summerau to Prague.	One through train three times per week : Vienna - Salzburg - Innsbruck - Buchs - Zurich - Bâle - Paris.
One daily express train : Vienna-Salzburg-Innsbruck, with through connection at Salzburg for Munich.		One express train three times per week : Vienna - Salzburg - Innsbruck, with through connection at Salzburg for Munich.

Three daily express trains : Vienna - Salzburg - Munich - Southern Germany.

Two daily express trains : Vienna - Passau - Nuremberg - Frankfort-on-Main - Cologne.

One daily express train : Vienna (Western Station) - Selzthal - Villach - Pontafel - Rome.

One daily express train : Vienna (Southern Station) - Leoben - Villach - Pontafel - Rome.

One daily express train : Vienna (East Station) - Budapest - Belgrade - Sofia - Constantinople.

One daily express train : Vienna (East Station) - Marchegg - Budapest - Bucarest.

Six daily express trains : Vienna (North Station) - Cracow - Poland - Galicia and Russia.

Two daily express trains : Vienna (North Station) - Brunn - Prague - Bodenbach - Dresden - Berlin.

One express train three times per week : Vienna - Salzburg, with through connection for Munich.

One daily express train Vienna - Passau - Ratisbon - Leipzig - Berlin.

One through train three times per week : Vienna - Passau - Nuremburg - Frankfort-on-Main - Cologne - Holland and Ostend.

One express train three times per week : Vienna (Southern Station) - Leoben - Villach - Tarvis - Rome - Trieste.

One through train three times per week : Vienna (Southern Station) - Leoben - Villach - Tarvis - Venice - Trieste and Rome.

One through train three times per week : Vienna (East Station) - Budapest.

One through train three times per week : Vienna (East Station) - Budapest - Bucarest.

a) International Express. *(Continued.)*

The Summer time-table for 1914 (before the war) contained the following services (in both directions).	Period immediately following the war.	The present time-table (January 1921) contains the following services (in both directions).
One daily express train : Vienna (East Station) - Brunn - Prague - Carlsbad - Dresden - Berlin.		One through train three times per week : Vienna (North Station) - Lemberg and Warsaw.
One daily express train : Vienna (North Station) - Iglau - Teschen - Dresden - Berlin.		One daily express train : Vienna (Francis-Joseph Station) - Prague - Berlin.
One daily express train : Vienna (Francis-Joseph Station) - Prague - Berlin.		One express train three times per week : Trieste and Agram - Linz - Prague.
One daily express train : Trieste - Linz - Prague - Berlin.		One express train three times per week : Munich - Salzburg - Tarvis - Trieste.
Four daily express trains : Munich - Salzburg - Villach - Trieste.		

b) Express Trains (Internal Services).

One weekly express train : Vienna (West Station) - Aussée - les - Bains.	After the end of the war it was found possible to run a few express trains (internal service only) several times a week on the two principal lines of new Austria, *i.e.*, Vienna (West Station) - Salzburg - Innsbruck - Bregenz and Vienna (South Station) - Leoben - Villach - Tarvis. Some months later, however, especially during the winter of 1919-1920, the want of coal became so great that all express trains were suspended.	
Two daily express trains : Vienna-Salzburg.		
One daily express train : Vienna-Selzthal-Innsbruck-Lindau.		
One daily express train : Salzburg-Innsbruck-Lindau.		
One daily express train : Prague-Salzburg.		
One daily express train : Selzthal-Linz-Budweis-Prague.		
One daily express train : Wels-Passau.		
Three daily express trains : Attnang-Pucheim - Aussée-les-Bains.		One express train three times per week : Vienna - Salzburg - Innsbruck-Bregenz.

b) Express Trains (Internal Services). *(Continued).*

The Summer time-table for **1914** (before the war) contained the following services (in both directions).	Period immediately following the war.	The present time-table (January **1921**) contains the following services (in both directions).
One daily express train: Attnang-Pucheim-Ischl-les-Bains.		
One daily express train: Prague-Linz-Salzburg - Tauern - Villach Railway.		
One daily express train: Innsbruck-Feldkirch-Buchs and Bregenz.		
Two daily express trains: Vienna (North Station) - Lundenburg-Brunn.		
One daily express train: Vienna (East Station) - Budapest *via* Bruck-on-Leitha.		

Three daily express trains : Vienna (East Station) - Budapest via Bratislava.		
One daily express train : Vienna (North-West Station) Iglau- Nimburg-Reichenberg.		
Two daily express trains : Vienna (Francis-Joseph Station)-Prague-(Francis-Joseph Station).		
Three daily express trains : Vienna (Francis-Joseph Station) Gmünd-Pilsen-Eger and Carlsbad.		

II. Direct Trains.

	direct trains		
line : Vienna-Linz	6.	Immediately after the war it was found possible for several months to run, on an average, two direct trains in either direction on the main lines. Soon, however, the lack of coal became so serious that by the end of 1919 these trains could only run three times a week, being later further reduced to two a week. During the winter 1919/20	2 direct trains.
line : Linz-Salzburg	7.		3 » »
line : Salzburg-Innsbruck . . .	4.		2 » »
line : Innsbruck-Lindau	4.		2 » »
line : Amstetten-Bischofshofen	5.		2 » »
line : Summerau-Linz.	4.		2 » »

II. Direct Trains. *(Continued.)*

The summer time-table for 1914 (before the war) contained the following services (in both directions).	Period immediately following the war.	The present time-table (January 1921) contains the following services (in both directions).
direct trains		
line : Linz-Selzthal . . . . . 5.	coal supplies failed completely, so that passenger traffic had to be stopped for several weeks.	2 direct trains.
line : Selzthal-St.-Michael . . . 6.		2 » »
line : Wels-Passau . . . . . 5.		2 » »
line : Attnang-Stainach-Irdning 7.		2 » »
line : Schwarzach–St.–Veit–Rosenbach . . . . . 4.		2 » »
line : Leoben-Villach-Tarvis . . 5.		1 » »
line : St.-Veit-Klagenfurt-Assling 5.		2 » »
line : Vienna (East Station) Bruck-on-Leitha (Budapest) . 3.		2 » »
line : Vienna (East Station) Marchegg-Budapest . . . . . 3.		1 » »

line : Vienna (North Station)-Lundenburg (Poland)	6.	0 direct trains.
line : Vienna (North Station)-Lundenburg (Brunn)	3.	2 » »
line : Vienna (East Station) Grussbach (Brunn)	3.	0 » »
line : Vienna (North-West Station)-Znaim (Teschen) . . .	4.	2 » »
line : Vienna (Francis-Joseph Station)-Gmund (Prague and Eger)	4.	3 » »

2. *Summary of Passenger Trains per Day (kilometres)*

	July 1914		January 1919	January 1921
	Austrian Empire	Austrian Republic		
Express trains	558,564	31,425	1,055	3,038
Through trains	1,914,963	73,830	19,137	31,973
Total.	2,473,527	105,355	20,192	35,011
Comparing the above figures for the last pre-war year on the territory of the present Austrian Republic with those of January 1919 and 1921			19 %	34 %

3. *Tonnage of Goods.*

Goods carried on the State-owned and State-operated lines.

Financial year	Goods.				Total.	
	By fast trains.		By slow trains.			
	Tons.	Kilometric tons.	Tons.	Kilometric tons.	Tons.	Kilometric tons.
1913. Total system of former State Railways	1,140,768	148,804,029	84,686,196	12,161,468,483	85,826,964	12,310,272,512
1918-19 State Railways of the Austrian Republic	300,856	33,228,705	15,120,290	1,979,039,650	15,421,146	2,012,268,355
1919-20 State Railways of the Austrian Republic	203,812	12,179,421	14,120,311	1,706,803,337	14,324,123	1,727,182,758

Statistics are still lacking for similar information concerning privately-owned railways.

C. Rates.

Increase of Charges on Passenger and Goods Services.

In order to remedy the disproportion between the working receipts and expenditure, which is continually increasing (it had been noticeable during the war and still more so since the war) and which was due partly to the restriction of traffic, and partly to the sudden leap in expenditure on personnel, and the excessive increase in the cost of all material, the authorities of the Austrian State Railways have been obliged, on several occasions, to increase the charges both on goods and passenger traffic, in order as far as possible to balance receipts and expenditure.

1.—*Goods Service.*

A.—*List of Rates imposed by the Imperial Royal Austrian Railways during the War*

February 1, 1917: Increase of 30 % on all existing goods rates.

January 1, 1918: Increase of 50 % on rates for fast trains, 1st class fares, and single parcels, followed by a fixed addition to goods rates (supplement for working charges); finally a revision of the general table of rates on goods traffic, thereby transferring a large number of articles to higher categories in the scale of rates.

September 1, 1918: Increase of 40 % on coal rates and of 70 % on rates for all other articles, followed by the replacement of the "Supplement for working charges" by a fixed supplement slightly reduced in amount.

B.—*List of Rates on the Railways of the Austrian Republic.*

October 15, 1919: Increase of 150 % in all categories of goods.

January 1, 1920: Incrase of 150 % in all categories of goods.

April 15, 1920: Increase of 100 % in all categories of goods.

October 15, 1920: Introduction of new rates (provisional rates) drawn up on a new basis in order to assimilate all rates, without materially augmenting the financial returns.

December 15, 1920: Increase of 50 % of the rates of the revised goods scale with the exception of those covering foodstuffs and raw materials Moreover, since the beginning of the war, about 60 exceptional rates, (including all the export rates) have been suspended. Reductions of rates granted on certain special articles have been suspended. These steps have resulted in an average increase of 6,000 % on the 1914 rates.

2.—*Passenger and Luggage Services.*

A.—*List of Rates introduced by the Imperial Royal Austrian Railways during the War.*

February 1, 1917 : Increase of about 30 % on rates for luggage and passengers.

December 1, 1917 : Increase of 50 % on rates for luggage and passengers.

B.—*List of Rates introduced by the State Railways of the Austrian Republic :*

May 5, 1919 : Increase of rates by 50 % on passenger traffic for third-class passengers, 66 2/3 % for second, and 100 % for first ; increase of 50 % on luggage rates.

November 15, 1919: Revision of passenger and luggage rates. The following increases in prices ensued : for third-class slow trains about 50 %, for second and first class about 80 %, for express trains, third class, about 80 %, and in the second and first classes about 115 %. The increase in the rates for luggage on slow trains was about 85 %, and for luggage on express trains about 178 %.

January 1, 1920 : Increase of 50 % in passenger rates and of 150 % in luggage rates.

April 15, 1920 : Increases of 50 % in passenger rates and of 100 % in luggage rates.

These increases on passenger and luggage rates compare as follows :

Third	class,	slow	trains	929 %,	express trains	1,069 %
Second	»	»	»	1,209 %,	» »	1,388 %
First	»	»	»	1,500 %,	» »	1,718 %
for luggage		»	»	2,400 %,	» »	3,650 %

The data for the Austrian State railways hold true in a general way for the privately owned railways, as the latter generally follow the example of the former as regards rates.

D. Fuel

The railways included in the territory of the Austrian Republic use, and have always used, coal (sometimes in the form of briquettes) as their principal form of fuel ; mineral oil being only used to a limited extent on certain mountain lines where there are numerous tunnels.

The railways of the former Austrian Empire were in a position to obtain the greater portion of the fuel they required from local sources.

For instance, the State railways obtained 84 % of their fuel from the Austrian mines, only the remaining 16 % coming from the mines of Upper Silesia and from England.

The deliveries being effected on a contract basis, it was easy at the time of delivery to ascertain that the coal supplied was of good quality. In this way it was possible to be satisfied with proportionately small quantities.

In those days 2,504,000 tons sufficed for working lines corresponding in extent to the present system of the Austria Republic, whereas today 3,786,000 tons are needed for the same distance, on account of the falling off in quality.

The pithead prices were :

for lignite obtained from Bohemia	13.40	crowns per ton
for coal obtained from Upper Silesia	19.08	» » »
for coal obtained from Ostrau	17.30	» » »

After the disruption of the former Austrian State, the supply of coal was seriously affected by the loss of those districts which had till then supplied this fuel, particularly as the supplies coming from foreign coal-fields—such as Czecho-Slovakia, Germany, and Poland—were at that time completely suspended.

The negotiations which were immediately opened with Czecho-Slovakia and Germany only resulted in providing an extremely reduced supply, which was inadequate to meet the needs of the traffic.

The prices of coal, estimated at the pithead, then were :

for lignite from Bohemia	92.00	crowns per ton
for coal from Upper Silesia	136.57	» » »
for coal from Ostrau	59.00	» » »

Since then, the conditions for the supply of coal have certainly somewhat improved. During the year 1920, the consignments for the railways—though still, indeed, too small—have at any rate been moderately satisfactory, although irregularities of transportation have occasioned difficulties in delivery.

The coal consumed by the Austrian railways amounted in 1920 to about 2,400,000 tons.

This quantity may be classified, as regards its origin, as follows :

41 % from the lignite fields of Czecho-Slovakia (Brux, Teplitz, Komotau and the Falkenau Basin).
11 % from the Ostrau coal-field.
36 % from the coal-fields of Upper Silesia.
12 % from the home coal-fields.

At the end of December the prices, estimated at the pithead, were as follows :

For lignite obtained from Czecho-Slovakia, 135.78 Czecho-Slovak crowns per ton ;
For Ostrau coal, 424.00 crowns per ton ;
For Upper Silesian coal, 304.00 marks per ton ;
For home-produced coal from Traunthal, 917.40 Austrian crowns per ton ;
For lignite from Graz-Koflach, 889.29 Austrian crowns per ton.

The consumption corresponds to the reduced requirements of the traffic, which is still very limited and entirely inadequate.

In order to increase the traffic, so as to correspond to present requirements, a considerable increase in the deliveries of foreign coal would be necessary ; all the more so because the amount of fuel consumed per kilometre has risen appreciably in comparison with the pre-war returns ; this is no doubt because the quality of the coal is so much inferior to that of the coal used before the war.

E. General Financial Situation of the Railway Systems.

In the last years before the war, the Austrian Empire had resolutely carried out the policy which it had pursued for twenty years with regard to the purchase of private railways, so that at the time of its dissolution, nearly all the important private railways, except the Sudbahn and the railways of the coal district in Nord-western Bohemia, were already in possession of the State. Although these purchases affected the territory of the Austrian Republic less in proportion than that of the other States formed by the Treaty of Peace, nevertheless the State railways are so much the more important (though their extent is scarcely a quarter of that of the former Austria), that their financial situation may be taken to represent that of all the railways of Austria. The data given below are, therefore, only concerned with the finances of the State railways.

	1913	1919/20	1920/21
	State Railways of the Austrian Empire	State Railways of the Austrian Republic (Figures from Budget)	
Length operated in kilometres	19,289	4,478	4,478
	Millions of crowns.		
Receipts from working the lines	887	1,759	5,115
Expenditure of working the lines	691	1,940	8,599
Profit on working the lines	196	—	—
Loss from working the lines	—	181	3.448
Sums required for payment of interest and for amortisation of invested capital . .	247	66	105
Additional sums, taken from other revenues of the State, to cover the deficit of the State Railway (Supplementary contribution of the State)	51	247	3,589

The conditions were never very favourable for obtaining good returns from the Austrian State Railways. In the first place the difficulties of the ground, due to the orographical and hydrographical situation of the Empire, —the greater part of which has the characteristics of a mountainous country— presented obstacles to the construction of most of these railways, owing to the great differences of altitude in the country traversed. The track had to be carried over Alpine passes or through narrow gorges, which imposed extremely difficult tasks on the Austrian railway engineers, in which, however, they were completely successful. These characteristics of the task involved the construction of a great number of

artificial works : tunnels, bridges, viaducts, embankments, cuttings, and works for strengthening slopes, in order to avoid avalanches and landslips, with the result that the capital sunk in the line was abnormally large, and that the railway was burdened with heavy expenses for upkeep and working ; a profitable exploitation of the lines was then difficult. In addition, numerous lines were constructed with the object of improving conditions in relatively unproductive districts, situated too far from the main routes of traffic to be able to dispose of their produce by connecting them with the existing traffic routes and stimulating their productivity. Until these measures had been able to produce their effect no large returns could be looked for from these lines.

It is to these special conditions of construction that the relatively low returns from the Austrian State Railways must be attributed. Although, before the war, their receipts were sufficient to cover their working expenses, they have never been able to yield sufficient profit to meet the charges for interest and amortisation of invested capital ; for this purpose more or less considerable subsidies had to be provided out of other forms of State revenue.

Enormous expenditure was incurred, especially during the last years previous to the war, in carrying out considerable improvements in the engineering works and structures and in the rolling-stock of the recently purchased railways which traverse Bohemia, Moravia and Galicia, and lead to the North-Western, Northern and North-Eastern frontiers ; the same applies to the construction and establishment of the second line of railway communication with Trieste, where, in the section Tauern, Karawanken and Wochein, enormously difficult and costly engineering work has been carried out.

By economic working it has nevertheless been possible to increase annually the yield of the State Railways, so that in 1913 the above, mentioned subsidies, which in 1909 had already reached the considerable sum of 114,000,000 crowns, was reduced to 51,000,000. It was therefore permissible to look forward to a better financial future for the former Austrian State Railways.

On the other hand the financial situation of the Republican State Railways is desperate. Of the former railway system—barely a quarter of which (4,478 km. of 19.289 km.) has remained in the possession of the new State—the most productive lines, which had developed rapidly during the years before the war, and, at the cost of considerable sacrifices, even during the war, have become the property of the Succession states. The lines still belonging to Austria, of which the terminal stations are at Vienna, are, on the other hand, overburdened with excessive capital expenditure on construction and with a complicated and costly system of working, owing to the fact that they cross unproductive mountainous regions and are, therefore, unprofitable to operate ; the considerable expenditure incurred through the construction, upkeep, and operation of these terminal stations was formerly off-set by the total yield of the important routes which started there ; but at the present time this expenditure is out of all proportion to the meagre fragments

of lines which are all that remain to Austria. Similiarly, Austria retains the central offices of administration of these formerly important routes (which have now been so much shortened by the fixing of the new frontiers), and she also retains the great number of employees necessitated by the former extensive administration, and who now cost the State large sums of money which cannot be covered by receipts from the present restricted railway system.

Finally, the administration of the Republic State Railways found itself obliged to make use of thousands of employees who had had to leave the territory of the States formerly part of the Austrian Empire, and whose case has been referred to above. These circumstances explain the extraordinary expenditure incurred by the Austrian State Railways on account of staff, an expenditure which is disproportionate to the length of the lines under operation. Owing to the continual depreciation of our money and to the continuous rise in the cost of living, the administration of the State Railways has also on several occasions been obliged to increase the wages of the employees ; this also has been a very heavy item, although the wages paid do not exceed the amount necessary for the barest requirements of life.

Whereas expenditure on personnel on the former State Railways, which had an extent of 19,000 kilometres, amounted in 1913 to 421,000,000 crowns, the 1919-20 Budget of the Austrian Republic provides for an expenditure of about 4,700,000,000 in wages, although the system is so much smaller. This is a provisional estimate and is certain to be exceeded.

The increased cost of material is equally alarming; this expenditure, which in the last year before the war amounted to 270,000,000 crowns on the Imperial and Royal Railways, has now reached a total of about 3,850,000,000 on the State Railways of the New Austria. In this connection it must especially be borne in mind that the material of which the largest quantities are consumed—especially coal and oil—comes, for the most part, from foreign countries ; the price of these materials is consequently very unfavourably affected by the depreciation of our money.

Whereas fuel for locomotives on the Imperial and Royal State Railways cost, before the war, 55,000,000 crowns, the acquisition of this material for the railways of the Republic—although these lines are reduced by three quarters, and in spite of the considerable restrictions in the traffic necessitated by the lack of coal—costs 2,000,000,000, of which 1,850,000,000 are due solely to the loss on exchange caused by the depreciation of Austrian money.

The following examples will show the movements in the price of working materials :

Price for	Aug. 1914	Dec. 1920
	Crowns.	
100 kg. of petrol	25	3,200
100 kg. of benzine	37	6,000
100 kg. of sheet-iron for boilers	29	2,400
1 pr. of wheels	450	36,000
100 kg. of copper	180	20,000
100 kg. of tin	385	62,000
one sleeper	4	165

The administration of the State Railways is making every effort to cover increased expenditure by a corresponding increase in rates (which have been considered in detail elsewhere), but the travelling public and those who despatch goods by rail have, after all, only a certain paying capacity, and the limits of this capacity have very nearly been reached.

It might, nevertheless, have been hoped that the financial situation of the railways would improve slightly, if traffic increased somewhat.

The indispensable condition of such improvements, however (apart from the drawbacks attendant on the necessity of depending upon foreign countries for coal supplies), is the restoration of Austria's economic situation, which will continue to be more than precarious as long as the burdensome provisions of the Treaty of St. Germain are strictly observed.

II

NAVIGATION

A. Material

1. *Condition of the Ports.*

Danube.—If we include in the term "ports" all closed harbour basins, the Austrian section of the Danube possesses the following ports :

(a) Vienna-Freudenau ;
(b) Vienna-Kuchelau ;
(c) Linz.

As regards *(a)*, the port of Vienna-Freudenau is used in the first place as a harbour of refuge and a wintering port. It has an area of 43.5 hectares, a total length of bank of 6,200 metres, and it is dredged out to a depth of 5 metres below the mean water level. The port, which was open to traffic in 1903, can take 400 boats.

It is provided with a system of roads, power-stations and electric-light installations ; it has a water-main bringing water from the Alps, and it is connected directly by lines of railway to the Danube river-side railway ("Donau-Uferbahn"). Since 1915 the port has been equipped with four yards, with a total capacity of 960 trucks, for direct transhipment.

As regards *(b)* the port of Vienna-Kuchelau has an area of 13.3 hectares, a total length of bank of 3,400 metres, and it is dredged out to a depth of 4.5 metres below the mean water level. In this port, which is not being used at present, 100 boats could be accommodated, if required.

With regard to *(c)*, the port of Linz, a harbour of refuge and wintering port, has an area of 6.5 hectares, a depth of 4 metres below the normal level of the water at Linz ; it could accommodate about 100 boats. It is connected by direct lines of railway with the State railways.

Lake Constance.— On Lake Constance there are situated :

(a) The port of Bregenz, besides public berthing places for vessels at :
(b) Hard ;
(c) Lochau, and
(d) Fussach.

As regards *(a)*, the port of Bregenz is used for both passenger and goods traffic.

The establishments of this port are duly equipped with the installations necessary for goods traffic (cranes, sheds, goods yards etc.).

With regard to *(b)*, *(c)* and *(d)*, the berthing stations for vessels at Hard, Lochau and Fussach are primarily used for passenger traffic. Goods are only handled to a very limited extent at these places (the despatch of luggage, loading and unloading of goods exempted from all customs duties).

2. *Congestion.*

The sheds of the Danube ports and the other working installations are, generally speaking, sufficient for the requirements of the traffic, so that both before and after the war, as also at the present time, congestion has only arisen as a result of abnormal conditions (strikes, ca'-canny, periods of unusually high or low water, boycotts), and has only been temporary ; it has always been completely coped with in a very short time.

3. *Condition of the Waterways.*

In Austria the Danube is the only waterway of importance for traffic. Its Austrian section (from Passau to Thebes) has a length of about 343 kms., of which 146 kms. has a rocky bed, as the river flows through mountainous country. The remaining 197 kms. traverse river valleys, where the river has dug its bed in soft soil. The Danube, in its Austrian section, has the character of a mountain river with a steep fall of water and great differences of level in times of flood and low water. Only a few hard rocks have been able to withstand the force of the current, and these still form an obstacle to the improvement of the navigable channel.

Works for the improvement of navigation on the Danube were begun early in the Middle Ages; the first systematic works for controlling the flow of water were undertaken from 1850 onwards. In the second half of the 19th century steps were taken to form a navigable channel, controlled on the basis of a mean water level ; and towards the end of the century control was undertaken on the basis of the level in times of low water.

The object of this system of control is to provide a navigable channel which, even when the water is lowest, will have sufficient depth and width ; these works must assure an effective depth of 2 metres (in sandy sections) and of 2.1 metres (in rocky sections) when the level of the water is lowest.

The works which have hitherto been executed—the works intended to

ensure navigability when the waters are low have only been partly carried out—had already so far succeeded that, (over the shallows in sandy sections of the river), a minimum depth of 2 metres, reckoned below the low-water level, had been obtained throughout. Only a few sections are still in process of construction and development ; even these, however, do not all present difficulties at periods of low water, because experience has shown that, when the water falls, a certain scouring takes place in the shallows.

So far as circumstances will allow, it is proposed to extend this control to sections of the river in which works have not yet been undertaken, in order to provide a channel, at low water, throughout the whole course of the river.

As regards the rocky portions of the river situated in the "Kachlets" of Aschach and of Brandstatt, and also in the rapids of Grein, where the required results have not been attained, it will be necessary to take special measures to deepen the channel to the required extent.

4. *Upkeep (Normal and Exceptional).*

In the Austrian section of the Danube, upkeep work of an urgent nature has always been, and, so far as possible, continues to be, carried out without any delay.

In view of the generally satisfactory condition of the navigable waterway there is no urgent construction work of importance apart from small repairs and local dredging.

The principal task for the near future in connection with stabilising the channel (a task that is more important than ordinary upkeep work) is the continuation and completion of this work of stabilisation near Schildorf, Ashach, Goldworth, Steining-Abwinden, Ruprechtshofen, Wallsee, Ebersdorf, Tulln and Orth.

The purpose of this work is to ensure, at these points, a practicable depth of 2 or 2.1 metres below the level of the lowest watermark, a level which has not yet been finally determined.

5. *Improvement of Existing Ports and Works on Proposed New Ports or New Waterways.*

In considering the works intended to improve the course of the Danube in Austria, it should be noted that the deepening of the navigable part of the Danube throughout its extent to a minimum depth of 2 or 2.1 metres—as Austria had proposed—will necessitate similar work on all parts of the river which do not yet conform to these requirements. The necessary work in connection with this scheme will be carried out, as we have already stated, as soon as credits are available.

The importance of Vienna as a transhipment centre and as a port, and the consequent necessity for improving the traffic installations already in existence on the right bank of the Danube at Vienna, have given rise to a scheme for the development on a considerable scale of the installations

for large vessels at Vienna. This scheme is to serve at the same time as a protection against floods, as an improvement of the waterway for large vessels as well as for the development of the port ; essential parts of the scheme are the prevention of floods in the area on the left bank of the Danube at Vienna, the construction on this territory of a channel adapted for large boats and for unloading purposes, as well as the raising of the level of the ground on both sides of this channel to the height of the right bank of the principal waterway. The river-side sites obtained by this work of construction along the channel, which would have an area of about four million square metres, could be transformed intotranshipment stations. In connection with the establishment of this channel, which is to serve as a navigable waterway, it is proposed to convert the old bed of the Danube into a spacious port. The capacity of these new establishments as regards transhipment services, which would be about 12 million tons per year, would probably be quite sufficient for the future. The realisation of this scheme, the total cost of which would be 282 million crowns (calculated according to the normal prices of the pre-war period), can hardly be regarded as a matter for serious consideration, in view of the terrible state of Austrian finances.

As regards the construction of new artificial waterways, as Austria has no sea-coast, it is not possible for her to establish upon her territory any communication between her principal waterway, the Danube, and the sea, although to-day this would be of greater value than ever to her economic and commercial interests. This is especially true as regards the construction of a canal running directly from the Danube to the Oder, which would guarantee to Austria a natural outlet to the North Sea and the Baltic. Before the war Austria had prepared a scheme for the construction of this waterway with an extension to Vienna ; the territorial changes which are the consequence of the war have completely removed the possibility of Austria having any influence on the construction or course of such a canal. It appears that Czecho-Slovakia, which still favours the idea of this canal, intended to select a course which, avoiding Austrian territory, would run into the Danube near Thebes, 50 kilometres beyond Vienna. Compared with the line formerly proposed by Austria, which would have entered the river near Vienna, the sole advantage of this new line would be slightly to shorten the waterway (Vienna-Thebes). This might facilitate transport between the north and south-east of Europe. But this advantage is of slight importance, and its economic effect is problematic ; for the great disadvantage of this route would be that all transport intended for Vienna and places situated above Vienna would have to pay extra freightage to return upstream from Thebes to Vienna.

It is thus, for economic reasons, greatly to Austria's interest that the future canal from the Danube to the Oder should enter the Danube at a point near Vienna, or that at least the city should be connected by a branch canal to the new line, in order to avoid the above-mentioned detour (upstream from Thebes to Vienna). This object could be easily attained by the construction of a canal about 40 kilometres long, which would join the proposed waterway near Ungeraiden and would connect with Vienna.

6. *Condition of the Fleet.*

Danube.—First Danube Steamship Company (Erste Donau Dampfschiffahrts-Gesellschaft).

The company's fleet before the war consisted of 142 steamships of 63,400 registered horse-power and of 868 steam tug barges for goods with a total tonnage of 472, 768 tons. The fleet included, in addition, 215 pontoons, 1 floating dock, 1 floating dredger, 2 grain elevators, 5 floating steam cranes and 1 floating steam pump.

During and after the war this material was considerably reduced, on the one hand owing to the loss of boats which were sunk (only a few of which could be refloated), and on the other hand by the seizure and requisitioning of material by the Governments of Roumania and the Serb-Croat-Slovene State when the old Austro-Hungarian Monarchy was broken up.

In addition, the company lost some of its vessels, which it was forced to give up to the Danube Command at Belgrade when the Armistice was concluded between Hungary and General Franchet d'Esperay.

On the other hand, the company's shipping has been increased since 1914 by sixteen steamboats, 68 steam tug barges and 10 tanks. Reliable figures as to the present strength of the Danube fleet are not at present obtainable.

The South German Danube Steamship Company (Süd-deutsche Donau-Dampfschiffahrts Gesellschaft).

This limited liability company was constituted in accordance with German law ; all its shares were acquired by the Austrian Government in 1910. At the beginning of 1914 its fleet comprised 12 steamships of 6800 registered horse power, 3 motor-boats of 720 effective horse power and with a tonnage of 1950 tons, 115 for towing, with a tonnage of 76,751 tons, and also a floating crane.

This company, like the Austrian company, suffered the loss of a considerable amount of material in the period immediately following the war.

Lake Constance.—The Austrian fleet on Lake Constance comprised, before the war, 5 paddle steamers with a total registered horse-power of 2,898, 1 screw steamship of 250 registered howe-power, 1 coal barge and 4 transhipment ferry-boats.

No change has occurred except the sale of two of the transhipment ferry-boats.

B. Traffic.

1. *Navigation.*

Danube.—1. Passenger Service. The passenger service on the Austrian section of the Danube was carried on before the war exclusively by the First Danube Steamship Company (Erste Donau Dampfschiffahrts-

Gesellschaft). This Company maintained a postal service on the line Linz-Vienna, an express service on the line Linz-Vienna, and a local service on the line Passau-Linz, and on the line Grein-Melk-Krems-Hollenburg.

On the Austrian Line the company had also, as a first step, instituted postal services between Vienna-Budapest and local services between Vienna-Bratislava.

On these parts of the Danube outside the limits of Austria, the company also maintained postal services between Budapest and Sulina, as well as local services on certain parts of the Danube in Hungary, the Drave, the Save and the Theiss.

Shortly after the war, serious difficulties arose as regards the transport of passengers on the Austrian part of the Danube, due to the holding up by Hungary, Roumania and the Serb-Croat-Slovene State of a considerable number of floating craft, and also to the scarcity of coal in Austria. The passenger service in Austria could thus only inadequately be maintained, being very restricted and at times even entirely interrupted. A passenger service beyond the Austrian frontier was at first not possible.

Latterly, however, the situation as regards fuel has improved, so that it is now possible slightly to increase the passenger service on the Austrian section of the Danube ; at the same time, owing to the influence of the Inter-Allied Danube Commission, services beyond the Austrian frontier (postal line to Budapest and local line to Bratislava) have been resumed. It has also been possible to organise several local services in the interior of Hungary ; vessels are still, however, unable to proceed beyond the station of Baja (frontier between Hungary and the Serb-Croat-Slovene State).

The South German Danube Steamship Company (Süd-deutsche Donau Dampfschiffahrts-Gesellschaft) has never undertaken a passenger service. The Royal Hungarian Sea and River Navigation Co., Ltd., on the other hand, which formerly had no passenger service on the Austrian part of the Danube, established last year for the first time, a passenger service between Vienna and Budapest.

2. Goods Traffic.—Before the war the Austrian company maintained regular express services for goods traffic on the whole of the Danube as far as Sulina. Immediately after the war, the goods traffic, together with the passenger service, was almost entirely interrupted. Outside Austria, sailings only took place in exceptional cases, and then only when a safe conduct had been granted in each case by the Inter-Allied Danube Commission.

The regular goods traffic has now been resumed as far as Baja ; in co-operation with the Serb-Croat-Slovene Kingdom, Bulgaria and Roumania, certain services have also been established for the transport, in large quantities, of important supplies intended for Austria (especially wheat, petrol, etc.). The resumption of regular services beyond Baja had till then not been found possible.

Before the war, the German company carried on, with its own craft, the regular goods traffic on the Danube and its tributaries in the section between Vienna and Belgrade ; on the part of the Danube below Belgrade, transport of goods was carried out jointly with the "Navigazione fluviale Romana".

After the war the service of the German company was affected by the same circumstances and conditions as the Austrian company.

Lake Constance.—1. Passenger-Service. The Austrian passenger-service on Lake Constance has been carried on by the "Austrian Lake Constance Steamship Company", which is operated by the Directorate of the State Railways at Innsbrück. Before the war there were, apart from certain local services, four winter and nine summer services on the main line from Bregenz to Constance. During and after the war it was necessary considerably to restrict this traffic, and only during last yearh as it been found possible to restore it even to a moderate extent (3 services daily).

2. Goods-Services.—Up to the present the navigation companies have carried on goods traffic mainly by means of transhipment ferry-boats (Bregenz-Constance, Bregenz-Friedrichshafen, Bregenz-Romanshorn). After the completion of the circular railway line around the lake the transhipment ferry-boat service gradually lost all importance and has, in fact, now been completely suspended. There are no Austrian barges on the lake.

2. *Passenger Traffic.*

Danube.—In 1913, the last year before the war, the Austrian Danube Company carried, on all the lines used for the transport of passengers, a total of 2,206,460 passengers.

In 1918 the number of passengers carried exceeded that of 1913, and in spite of considerable restrictions in force on the system, a total of 2,477,212 was reached. This surprising circumstance is largely due to the fact that traffic on the Austrian railways was almost entirely suspended at this period.

In 1919 the traffic on the railways being no longer so restricted, the total number of passengers carried fell considerably in a proportion corresponding with the reduced length of the lines in working, and did not exceed 990,457.

Lake Constance.—In 1913, 282,502 passengers were carried in Austrian steamships on Lake Constance. As a result of the restrictions put in force during the war, and also on account of other traffic difficulties, the number of passengers using the line fell considerably, and during the year 1918-1919 did not exceed 101,359 passengers. Quite latterly the number of passengers has shown a tendency to increase.

3. *Tonnage of Goods Carried.*

Danube.—The total figures for goods arriving at, and despatched from, forwarding offices on the Austrian Danube (ports, stations, agencies, landing quays) was 1,587,794 tons, (exclusive of the goods service in the winter ports). In the period immediately following the war, goods traffic

decreased considerably; this was due to economic and political circumstances in general and also to the complete interruption of the direct services on the Danube; compared with pre-war figures the difference is enormous.

It is only latterly that the traffic on the Austrian part of the Danube has been resumed.

Exact statistical data are not yet available.

Lake Constance.—In 1913 Austrian boats on Lake Constance carried a total of 160,481 tons of goods in all (principally coal, timber, corn and chemical products). This was largely carried out by means of transport ferries. On account of the restriction, and later of the complete suppression of this ferry-service, the amount of goods carried to-day by this service has necessarily fallen to an insignificant figure. In 1919-1920 about 140 tons of goods were transported.

C. Freights.

Before the war passenger fares on the boats (higher for upstream than for dowstream traffic) were much below railway fares. They have been increased several times during and since the war. Comparing the pre-war and post-war fares, it appears that in the autumn of 1918 they were increased by about 70-150 %, whilst to-day they are 14 to 26 times higher.

Before the war the rates for goods traffic (single parcels) were low. During and after the war they were considerably increased; in the autumn of 1918 the rates for the most important services were raised from 30 to 240 %; at present they are from 30 to 80 times higher than before the war. It is very difficult to compare the pre-war and post-war situation for the rates for the transport of goods in large quantities to and from foreign countries, not only because, since the beginning of the war, navigation on the Central Danube has often been interrupted, sometimes for long periods, but also because the exchange rates of the various countries differ so greatly.

D. Fuel.

Total Consumption for each type of Fuel; Source of Fuel; Cost Price per Ton.

The conditions for navigation on the Danube require in general the employment of coal. Authentic figures for the total consumption of coal on the Austrian part of the Danube do not exist. In normal times the boats often coaled outside Austrian territory. Statistics concerning the consumption in the different territorial sections have never been drawn up by the States through which the river flows.

The following figures are intended to give only a general idea. The largest undertaking, the First Danube Company, consumed, in 1913,

209,242 tons in all (total consumption by steam-ships, docks, stations, etc., on the whole of the Danube). The source of supply of this coal was from:

Pecs	153,741	tons
Upper Silesia	33,592	»
Ostrau	21,809	»
England	100	»

In 1919 the total consumption was 30,370 tons, coming from :

Pecs	2,955	tons
Upper Silesia	20,890	»
Ostrau	2,320	»
Tatar and Dorogi	4,205	»

The price per ton in 1913 was :

15 crowns for coal from the mine of Pecs belonging to the company; 23 crowns for foreign coal.

In 1919 these prices rose to :

243 crowns for coal from Pecs ; 434 crowns for foreign coal.

The Austrian boats on Lake Constance use coal (especially coal from the Saar Basin). The total amount of coal consumed by these boats was 4,371 tons in 1913 ; this figure fell considerably in consequence of traffic-restrictions after the war, and did not exceed 850 tons during the period 1918-1919.

E. General Financial Situation of Internal Navigation.

Navigation on the Danube is by far the most important factor in internal navigation in Austria. Even before the war it was threatened with serious obstacles. Traffic during the year 1913 was particularly affected by the serious crises arising from the consequences of the Balkan wars ; these consequences were particularly felt on the territory of the Lower Danube and also had a detrimental effect on Austrian navigation.

Austria was obliged to make great efforts to develop the goods service, especially on the Upper Danube, in order to as far as possible consolidate the general situation and her future economic opportunities. Later on, when the Danube formed part of the territory invaded during the war, Austrian navigation closed throughout the entire extent of the river. The consequences of the war and of the Treaty of Peace have also — this is self-evident — had an extremely detrimental effect upon the situation of Austrian navigation on the Danube. Apart from the precarious situa-

tion of transit on the Danube, Austrian shipping is also menaced by special dangers arising not only from the still-unsolved problems of the confiscation of a considerable part of its fleet and of the sequestration of the depôts, etc., situated in the States of the Lower Danube, but also from the handing-over of material under the clauses of the Treaty of Peace. Under present conditions, Austrian navigation on the Danube cannot attain a second economic development and an assured existence until the above-mentioned problems have been solved in a manner responding to the vital and fundamental interests of the country.

III

MOTOR TRANSPORT.

The number of motors employed in Government service was :

(1) before the war, 1914, about 100 motor buses used for transport of passengers between different towns;

(2) to-day this figure is about 30 motor buses serving for transport of passengers between different towns, and about 130 motor lorries used for the transport of mails, food supply and raw materials.

These services continue to be very restricted on account of the great cost of working them. The difficulty in obtaining fuel also considerably hinders the development of motor transport.

IV

AIR TRANSPORT.

Before the war, Austria had no aerial traffic. During the war efforts were made to establish aerial lines for the postal service by means of military aeroplanes between Vienna and Budapest, and from Vienna, *via* Cracow and Lemberg, to Kieff; these attempts were, however, suspended after a few flights.

Like other countries, Austria would be very glad to adapt the aeroplane to pacific purposes and to create a national air service which could be adapted to the lines of international traffic and would connect Austria with the air traffic of the world.

For the moment, the realisation of these plans is unfortunately hardly possible. On the one hand, the Treaty of Peace of St. Germain obliges Austria to deliver to the Principal Allied and Associated Powers all the old military' planes, and deprives her of all the means of starting an aerial traffic, of however modest a character. On the other hand, the prohibition imposed upon us, for an indefinite period, of obtaining, importing or exporting air-craft prevents us from obtaining the necessary material for the establishment of an air service.

Moreover, the Conference of Ambassadors in Paris has — by virtue of the above-mentioned Treaty of Peace — decreed the destruction, demolition or transformation of all installations on the sites which have been used so far for air services ; the retention of only a very small number of these buildings is permitted, so that even the essential preliminary conditions and installations for an air service are still lacking.

BELGIUM.

I.

RAILWAYS.

Material.

Condition of the Lines and Constructions.—Before the war the railway system operated by the Belgian Government had a total length of 4,373 km., of which 2,207 km. were double-track lines; that is to say, there were 6,508 km. of main lines.

During the war, 1,100 km. of railway lines were totally destroyed and 400 km. partially destroyed. The total reconstruction necessary amounted to 2,000 km. of main lines.

At the time of the Armistice 1,400 structures, of varying sizes, had been completely destroyed. At the present moment there are only three points at which the lines remain interrupted, namely:

1. The bridge at Selzaete on the Ghent-Torneuzen Canal;
2. The bridge at Huy-sur-la-Meuse;
3. The Louise-Marie Tunnel, between Audenarde and Renaix.

The structures which carry the line have all been restored, and, in the majority of cases, in a permanent form.

Good progress has also been made with the restoration of structures carrying crossings above the line.

All the lines were again in operation as early as July 1st, 1920. However, there are still 260 km. which require to be relaid to complete the double-track in all the sections which were double before the war.

During the war, various new lines were laid, and others were converted to double-track. The total length of lines on the Belgian Government system is, at present, 4,513 km. 675, of which 2,252 km. 395 are double-track, *i.e.*, some 6,766 km. of main lines. These figures do not include the lines in the districts of Eupen and Malmédy, which have a total length of 152 km. 580.

With regard to new lines in contemplation or under construction, the programme decided on includes :

1) The construction of 160 km. of double-track lines. The scheme provides for a quadruple track over 35 km. of the above as soon as the exigences of the service require it.

2) The conversion to quadruple track of 37 km. of the existing double-track.

3) The conversion to double-track of 360 km. of single-track.

Condition of Rolling-stock.—During the war rolling-stock was subjected to intensive use, and repairs were reduced to a minimum. A great part of the stock is therefore almost worn out, and it has been found necessary to scrap many of the wagons.

Not until all our rolling-stock has passed through the workshops for repairs or overhauling will our railway administration have a supply of rolling-stock in a more or less serviceable condition at its disposal.

Traffic.

(*a*) *Passenger Traffic.*

The rates of the average daily number of locomotive-kilometres to passenger trains is as follows :—

In 1913 :	137,383	locomotive-kilometres.
At the time of the Armistice :	0	» »
At the end of January 1921 :	80,476	locomotive-kilometres,

represents 58.6 % of the pre-war traffic.

Therefore, the average frequency of passenger trains, *i.e.*, the average number of passenger trains circulating on the Belgian Government's lines (length 4,373 km. in 1913, 4,513 km. in 1921), was :

In 1913	137,383 :	4,373	=	31 trains
In January 1921	80,476 :	4,513	=	18 trains

The resumption of the passenger train service was especially difficult in Belgium, owing to the fact that it was necessary to utilise Belgian and ceded German rolling-stock, which was, as a rule, in a bad state of repair.

Further, the shortage of fuel necessitated the restriction of traffic to a lesser number of trains than before the war. Endeavours were therefore made to provide a service limited to actual requirements ; the best possible connections were arranged at all junctions.

* * *

As regards the number of international trains in 1914 and 1921 a comparison gives the following results :

	July 1914.	Armistice.	March 1921.
Ostend-Dover (Boat Service)	3	0	2
London-Ostend-Brussels-Cologne	3	0	2
London-Calais-Brussels-Cologne	3	0	1
London-Ostend-Bâle-Milan	3	0	2
Brussels-Cologne	8	0	5
Brussels-Bâle	5	0	4
Brussels-Berlin	2	0	2
Paris-Cologne	7	0	2
Paris-Cologne-Berlin	2	0	2
London-Ostend-Berlin-Petrograd	1	0	1 (1)
Paris-Cologne-Berlin-Petrograd	1	0	1 (1)
London-Ostend-Cologne-Vienna-Balkans	1	0	1 (2)
Antwerp-Gladbach-Dortmund	3	0	1
Amsterdam-Brussels-Paris	3	0	2
Brussels-Amsterdam	7	0	2
Brussels-Paris	6	0	5
Brussels-Antwerp-Harwich-London	1	0	
Brussels-Zeebrugge-Hull	1	0	

(1) Resumed to Warsaw only.
(2) Resumed to Bucarest only; but thrice weekly from Nuremberg to Bucarest, changing at Vienna.

Belgium plays a part in the connection, established between Western Europe and the Balkans since the Armistice, by means of the Simplon-Orient Express, along the 45th parallel of latitude, but the Dover-Ostend route is at a disadvantage for this journey in comparison with the Dover-Calais route, as passengers travelling by the latter from London to the Balkans have a direct connection, whereas, by the Belgian route, they must leave London the previous day and spend a night either at Ostend or at Brussels.

For passengers going in the opposite direction there is, at present, sea connection for London by both routes ; however, from June 1st, 1921, onwards, the train arriving from the Balkans will reach Milan too late to enable connection to be made with the London-*via*-Ostend train, thoug the Calais connection will not be affected. Only one connection will remain, having Brussels as its terminus.

Holland also plays a part in the connection with the Simplon-Orient Express by means of a through-carriage, Amsterdam-Brussels-Milan. An attempt had also been made to establish a route by the Amsterdam-

Maestricht-Liège-Jemelle line ; it was found necessary, however, to abandon this project, as the number of passengers was negligible.

The change in the time-table of the Simplon-Orient Express on its way back from the Balkans will, from the point of view of Holland, have the serious drawback of causing travellers to miss the connection for Rotterdam, The Hague and Amsterdam. The only course open to these travellers will be to stay in Brussels or select a different route.

Belgium also takes a part in the communication established along the 50th parallel of latitude, known as the Paris-Warsaw-Vienna Express route. Connection with this train was made at Strasburg by sleeping-cars from Ostend *via* Brussels. These sleeping-cars are now running to Vienna and Berlin *via* Cologne. Belgium, however, thus loses her former direct communication with Munich and Prague, though she hopes that it will be restored *via* Cologne and Nuremburg, as well as her pre-war connections with Marienbad and Franzensbad.

On the Belgian-Alsatian line (London-Dover-Ostend-Brussels-Strasburg Bâle) the best and most important train is threatened with the loss of its Milan connection after June 1st, 1921 ; this is the service which leaves London at 8.30, Ostend at 16.25, Brussels at 19.30, arriving at Bâle at 9 on the following morning and at Milan at 20.35. The Belgian Railway Department has made strong protests against the carrying out of this decision and continues to protest. Although, in the present state of negotiations, there appears to be little ground for hope, it will continue to make representations to the various administrative bodies concerned until a measure so prejudicial to the interests of the Ostend-Dover line has been revoked.

* *

Belgium, which, because of its geographical situation, has been named the cross-roads of the nations, has a vital interest in the restoration of the various international railway communications which existed before the war.

Since the Armistice, she has already made considerable efforts with this object : train services now radiate from Brussels to London, Paris, Bâle and Milan, Cologne and Vienna, Cologne and Berlin and Amsterdam.

Belgium is making every effort to promote the restoration of the excellent international services which she enjoyed before the war, and for this she relies on the support of all the nations concerned.

Passenger returns.

Number of passengers carried in		1913 :	204,541,098
»	»	»	1919 : 102,396,936
»	»	»	during the first five weeks of 1920 : 80,257,852

(We are unable to furnish information for the period from June 1st, 1921, to the present date.)

(*b*) *Goods Traffic.*

The ratio of the average daily numbers of locomotive-kilometres to goods-trains is as follows:

In 1913: 130,340 locomotive-kilometres;
At the Armistice: 0 » »
At the end of January 1921: 92,022 locomotive-kilometres, representing 76.6 % of the pre-war traffic.

Therefore the average frequency of goods locomotives, with trains, operating on the Belgian Government lines was:

In 1913:	130,340 :	4,373	=	30 trains;
In January 1921:	92,022 :	4,513	=	20 trains.

The number of trucks supplied for transport for journeys commencing on the Belgian Government system was:

	In 1914	20,200
End of	December 1918	1,410
»	June 1919	10,741
»	December 1919	13,082
»	June 1920	15,904
»	October 1920	18,361
»	January 1921	15,179 (crisis)

To obtain the above results it was necessary:

1. To re-lay 2,200 kilometres of main-lines, as stated above.

2. To effect the re-opening of 593 stations and halting places, which it was impossible to use for goods traffic at the time of the Armistice (out of 1,450 existing before the war).

3. To repair the chief marshalling stations which had been destroyed by explosions, and thereby rendered unserviceable for the marshalling of trains.

4. To free the lines of some 30,000 trucks loaded with munitions, material and captured stores, which were distributed in such a way as seriously to impede the reorganisation of traffic.

5. To organise a temporary signal system and re-equip the workshops.

Tonnage of Goods.—Monthly average in 1914 (heavy goods) 5,121,415 tons; immediately after the Armistice: 692,349 tons; in 1920: 4,256,573 tons.

Tariffs.

Increase in passenger rates	Immediately after the Armistice	40 %
	At present	120 %
Increase in freight rates	Immediately after the Armistice.	40 %
	At present : tariffs 1 & 2.	200 %
	Tariff 3-3 first classes. For consignments charged according to minimum weight of 100,000 kg. and per truck	200 %
	For consignments charged according to minimum weight of 5,000 kg. and per truck	260 %
	Tariff 3 - 4th class	150 %

Fuel.—Before the war the railway authorities purchased a certain amount of bituminous coal, rubbly-coal and briquettes for locomotives in England and Germany.

From the Armistice to June 1920, all orders for railway-fuel were given to Belgian mines. In June 1920 the authorities received 4,870 tons of German coal, but in view of the higher cost of this fuel as compared with that of our own coal, we have ceased to use it.

General Financial Situation of the Railway Systems.

The following table shows the result of the working of the Belgian Government railways for the financial years 1913, 1919 and 1920.

The figures referring to the fiscal year 1919 are only approximate, and those for 1920 are only an estimate.

Financial Situation of the Belgian Government Railways.

	1913	1919 (1)	1920 (2)
Average length of line in operation.	4,368.5	3,776.00	4,413.8
Original capital	2,932,822,456.20	3,056,777,605.00	3,152,312,788.00
Total receipts	341,866,421.89	346,554,209.22 (3)	865,200,000.00 (4)
Cost of operation	248,870,835.00	516,807,358.00	1,028,517,975.00
Net receipts	92,995,586.89		
Debit balance		170,253,148.78	163,317,975.00
Financial expenses.			
a) Normal expenditure:			
Interest	79,510,055.58	83,090,868.75	86,202,751.00
Depreciation fund	21,737,930.24	23,576,015.88	24,401,138,00
Total	101,247,985.82	106,666,884.63	110,603,889.00

Financial Situation of the Belgian Government Railways. (Continued.)

	1913	1919 (1)	1920 (2)
Brought forward	101,247,985.82	106,666,884.63	110,603,889.00
b) Expenditure incurred through the War :			
Interest		7,696,757.58	25,556,907.00
Total of financial expenses	101,247,985.82	114,363,642.21	136,160,796.00
c) Part of the receipts to be allocated to companies holding concessions..	7,152,504.63	7,321,709.01	17,000,000.00
Total of general expenses	108,400,490.45	121,685,351.22	153,160,796.00
Debit balance	15,404,903.56	291,938,500.00	316,478,771.00
Co-efficient of exploitation	72.80 %	149·13 %	118.88 %

(1) Approximate situation.
(2) Estimate.
(3) Not including the receipts from military transport in 1919, the balance for which is still due.
(4) Not including the receipts for military transport during the first five months of 1920, the balance for which is still due.

II.

INLAND WATER TRANSPORT.

The present situation in regard to inland navigation is marked by the considerable increase in the cost of transport by water, as compared with pre-war charges.

This increase is so marked that a result, which appears to be economically paradoxical, has been produced, *viz.* : the cost of inland motor-transport is now normally greater than that of railway-transport, and the former has thus lost the only serious advantage which it possessed over the latter, that of cheapness. This clearly constitutes a grave menace to inland navigation ; it is true that certain goods are still being transported by water, but this is only because the railways are not always able to cope with the demands made on them, and because the exorbitant cost of rolling-stock seriously impedes the purchase of new trucks.

The situation, in this respect, will be very different when the price of rolling-stock begins to fall ; unless some means is found of lowering the present freight rates for inland water transportation, it is to be feared that the partial stagnation to which this industry has already been reduced will develop into complete paralysis, and that the rôle of inland vessels will be limited to that of a floating store, or a means for the transhipment in bulk of certain cargoes brought by sea-going ships.

The various reasons which have caused this large increase in river and canal freights are set forth below.

In 1914 the average charge for the hire of a light barge of 38 m. 50 was 0.05 c. per m. ton per day. Throughout 1920 this rate fluctuated in the neighbourhood of 0.25 c., *i.e.*, five times the pre-war tariff. The situation has been even more unfavourable in the case of navigation on the Rhine, where charter-parties have been concluded on a basis of 0.50 c. per ton per day.

There is clearly a large element of unjustifiable speculation in such fantastic prices ; this is proved by the fact that a few weeks later the same Rhine freights were quoted at 0.15 c. and 0.20 c., *i.e.*, at 15 % less, but there can be no doubt that, in view of the present situation of the raw material market, of labour and of fuel, etc., it will be difficult to maintain freight rates below 0.15 c. per metric ton per day.

The following table gives a comparison between water and rail freights for coal transported from Charleroi, Liége and the Ruhr to consumers in Brussels, Antwerp, Ghent and Paris for the years 1914 and 1920.

Port of Embarkation.	Port of Destination.	Freight by water in 1914 (Average for first six months.)	Freight by water in 1920. (Highest rates quoted.)	Railway freight in 1914.	Railway freight in 1920.
		Frs.	Frs.	Frs.	Frs.
Liége	Antwerp	2.40	9-12	4.19 (2.58*)	13.50
	Brussels	3.10	13.50-15	4.03 (2.06*)	13.10
	Ghent	3.60	13-16	4.51 (3.02*)	14.35
	Paris	7.85	50	—	—
Charleroi	Antwerp	3.35	13-15	4.07 (2.14*)	13.18
	Brussels	2.50	12-13	3.02 (2.00*)	10.60
	Paris	7.10	30-40	—	—
Ruhr	Antwerp	1.70	9-21	—	—
	Brussels	2.65	14.50-24		—
	Ghent	1.65	10-23		—
	Liege	3.50	20-30	—	—

* The figures in brackets show the rates for goods in transit.

The present cost of towing on Belgian waterways is shown in the table below. The rates apply to light barges of 38.50 metres and a tonnage of 300 metric tons.

	In Canals.	Estuary of the Scheldt.	Sambre and Meuse.	
			Upstream.	Downstream.
	Frs. per km.	Frs. per km.	Frs. per km.	Frs. per km.
Empty	1.95	2.65	2.65	1.55
Half-loaded	3.00	3.20	4.30	2.00
Loaded	3.60	3.80	5.70	2.50

On comparing the freight rates per kilometric ton in 1914 with the towage rates fixed in 1920 on the same basis (per kilometric ton) we arrive at the results shown below, which show that the present cost of towage alone is approximately equal to the total freight rates before the war.

Port of Embarkation.	Port of Destination.	Freight per kilometric ton in 1914.	Cost of towage per kilometric ton in 1920.
		Frs.	Frs.
Liége	Antwerp	0.016	0.014
	Brussels	0.015	0.013
	Ghent	0.012	0.013
Charleroi	Antwerp	0.026	0.036
	Brussels	0.032	0.040

The chief causes for the increase of freight cannot be ascribed to the decrease in river and canal craft in Belgium.

The total losses suffered by the country under this heading during the war do not exceed 250,000 metric tons. Moreover, despite the fact that part of our stock found its way into France after the Armistice, it would be an exaggeration to state that this caused a shortage of lighters in Belgium. It was not even found necessary to put into force the measures originally contemplated for checking the exodus of these craft. At no period was the departure of Belgian lighters for destinations abroad

prohibited, and the law of July 24th 1921 on the transfer of craft to foreign countries was applied in a very generous spirit ; in practice all applications for licences were granted.

Moreover, the number of tugs plying on the Belgian rivers has increased considerably since 1914. Amongst the booty abandoned by the enemy, Belgium recovered nearly 250 tugs. Half of these vessels are unserviceable for Belgian rivers ; having been built for towage on the Rhine, the Oder, the Elbe and the Weser, their draught is too great for our locks, etc. Further, the excessive demands made on them during the war have subjected them to such wear and tear that fully 100 had to be condemned as unfit for use as tugs.

The actual increase in horse-power, as compared with the pre-war figures, may be estimated at approximately 10,000 h.p. The increase in river and canal freights must therefore be attributed to causes other then the scarcity of transport material. These causes may be summarised as follows : increase in the cost of building, increase in working expenses and the decrease in working-hours.

1. *Increase in the Cost of Vessels and Tugs.*

The cost of the various classes of vessels has undergone a considerable increase in comparison with the increase in that of raw materials and labour.

A few facts relating to this increase are given below :

Class of ship	1914	1920
Tugs, per h.p.	180-225 fr.	1000-1500 fr.
Lighter, (spits) steel of 300 t..	25,000 fr.	125,000-150,000 fr.
Lighter, wood of 300 t.	12,000 fr.	45,000 fr.
Rhine barge 1350 t.	100,600 fr.	400,000 fr.

The purchase price is therefore four or five times greater than before the war.

2. *Increase in Working-expenses.*

Crews.—Before the war the wages of a master or engineer of a tug rarely exceeded 175 francs per month ; that of a stoker or seamen varied from 90 to 125 francs. The latter rate was also paid to lightermen.

The present rates are as follows :

Master and Engineer	fr.	645	plus	60 fr.	if married
Stoker and Seamen	»	565	»	»	»
Lighterman	»	535	»	»	»
Deckhand	»	415	»	»	»

Fuel, Food, Supplies and Repairs.— The high price of coal is the main cause of the high cost of river transport. Indeed, fuel accounts for only half the running expenses of a firm engaged in steam-towing. The rates for towage are therefore in direct ratio to the price of coal. This also applies to the freight ratio, in which towage constitutes one of the chief elements.

In 1914 the price of a ton of high-grade briquettes varied from 20 to 25 francs. The present price of class 2 briquettes (containing a percentage of cinders three times greater than that allowed before the war) is 155 francs when loaded on trucks.

All other raw materials, such as oil, rope, sheet-iron, iron, wood hand-tools, have undergone a similar increase.

The French Sub-Committee on Transport, appointed by the Central Commission of Enquiry on the Cost of Living, has drawn up the following table, giving the variations of the principal articles employed in the repair of ships from 1913 to 1920.

Description	1914	1918	1919	1920
	Fr.	Fr.	Fr.	Fr.
Oak, 40 mm., per sq. m. ...	11.00	18.00	25.00	27.00
Oak, 50 mm., per sq. m. ...	8.00	13.00	20.00	25.00
Matchboarding, 15 mm., per sq. m.	3.00	7.00	9.00	10.00
Oak logs, per cub. m.	190.00	450.00	585.00	660.00
Single deck nails, per kg. ..	2.25	5.50	7.00	7.00
Tacks, per kg.	1.40	3.00	4.00	4.00
Bolts, per kg.	2.00	5.00	6.50	10.00
Tow, per kg.	1.50	2.50	7.50	8.00
Felt, per lineal metre	0.80	2.50	4.00	4.00
Sheet iron	25.00	96.00	100.00	142.00
Steel cable, per kg.	1.70	3.00	5.60	5.00
Ordinary cable	1.20			5.00

3. *Decrease in Working-hours.*

The working hours on vessels have been fixed till further orders as follows :

Month	Before 15.9.20.	After 15.9.20.
January	7 a.m. to 17	7 to 17
February	6.30 ,, ,, 18	6.30 ,, 18
March	6 ,, ,, 19	6 ,, 19
April	3 ,, ,, 19.30	6 ,, 19
May	4 ,, ,, 20.30	6 ,, 19
June	4 ,, ,, 21	6 ,, 19
July	4 ,, ,, 21	6 ,, 19
August	4 ,, ,, 20	6 ,, 19
September	5 ,, ,, 19.30	6 ,, 19
October	6 ,, ,, 18.30	6 ,, 18.30
November	6.30 ,, ,, 17.30	6.30 ,, 17.30
December	7 ,, ,, 17	7 ,, 17

The new regulations for the hours of navigation will result in a potential yield for the navigable waterways of 18 % during the summer months, and of 9 % for the whole year. The normal duration of journeys will undergo a proportionate increase.

It will be seen from the preceding statements that it would be difficult to reduce the freight rates sufficiently to restore the difference in cost, which existed before the war, between water and rail transport.

An essential condition for a fall in the freight rates is a reduction in the cost of towage. The latter itself bears a direct ratio to the price of fuel.

The prices at present paid for mechanical towage in Belgium correspond closely to the cost prices and leave a very scanty margin of profit for the tug-owners. Immediately after the Armistice, the Belgian Government established a government service, the I. W. T. (Inland Waterways Transport), to work the tugs which had been abandoned by the enemy. This service charges moderate and fixed rates, and exercises a stabilising influence over the cost of towage. It does not hold a monopoly for mechanical towage on Belgian waterways, and it is estimated that about 150 privately-owned tugs are competing with the Government service.

In practice, however, the scale of the I. W. T. regulates towage. The creation of this public service had the advantage of enabling towage to be organised in a rational manner at fixed rates, which are known beforehand, and which are independent of the violent fluctuations caused by the

law of supply and demand. It has thus conferred on inland navigation an element of stability which is of the greatest importance in the present circumstances.

The above statement would be incomplete without a reference to a new measure, which has recently been decided on by the Minister of Railways at the suggestion of the Committee for the Exploitation of Navigable Waterways, which provides for an allocation of the transport of heavy goods between the railways and waterways.

Local sub-committees, comprising delegates of the railways, of the water transport services, and of users of the navigable waterways, will be formed in the principal industrial and commercial centres ; their business will be to ascertain the requirements of commerce and industry, and also the means of transport available, to fix a constant ratio between freights and the railway tariffs, and to make representations to manufacturers to induce them to use the means most suitable for the transport of their goods. In case of a shortage of rolling-stock, the railway may refuse to supply trucks to manufacturers or merchants who could send their goods by water but are unwilling to do so.

It is too early as yet to offer any opinion as to the results which may be obtained through the agency of these local committees ; but the innovation is worthy of note as it constitutes the first serious attempt to arrive at a practical understanding between the railways and waterways.

III.

MARITIME TRAFFIC.

A. Condition of the Ports.

The Belgian ports are at present adequately equipped for dealing with the maritime traffic which they are called upon to handle.

In few ports are the operations of loading and unloading carried out so rapidly ; vessels are rarely in demurrage ; the re-consignment of goods is effected promptly, and rarely gives rise to disappointment. Strikes are infrequent, and never of very long duration. As a general rule, it may be said that in no ports is the labour situation so good as in those of Belgium. The lighting of the structures of the ports, as also that of the rivers and canals, meets all reasonable requirements, while the police and fire arrangements, both on the river and in the docks and wharves, are well organised. There are few ports in which so few thefts are committed as in those of Belgium.

Special sheds, of recent construction, afford security and shelter for all descriptions of merchandise, and new buildings are being erected daily.

* *

The wharfage dues are moderate, and may be advantageously compared with those of competing ports ; this applies also to the charges for the handling of goods. The river, docks, and canals are under the supervision and control of a competent staff. The best proof of this is the relatively small number of accidents and injuries to the shipping which uses our establishments.

In order to meet a possible expansion of maritime traffic, it has been decided to enlarge the installations mentioned above, especially at Antwerp. New wharves will shortly be built, new docks dredged, and the channel of the river will be improved. A large sea-lock, known as the Kruisschans, giving access to a new ship-canal, approximately 250 to 275 m. wide and 5 to 6 km. in length, will be constructed. A cutting which will make it possible to construct several kilometres of new wharves, will eliminate a bend existing at this point. New floating wet-docks and dry-docks will open out of this ship canal.

The building of new embankments on the left bank of the Scheldt has been approved, in principle, together with that of a three-way tunnel joining the two banks of the river.

The plant of the ports is constantly being improved ; *inter alia*, electric lighting will shortly be extended to all the wharves and docks, which will be connected with one another by electric tramways, while a service of swift launches will be established between them.

At Ghent the construction of a new wet floating dock, parallel to the two already existing, has been approved. Further, the city of Bruges intends to revive her former splendour by making Zeebrugge a terminal port for passenger steamers between the continent and the United Kingdom, America, etc., and at the same time a first-class mercantile and fishing port.

* * *

The Belgian ports are seven in number : Antwerp, Ghent, Zeebrugge, Ostend, Nieuport, Brussels, and Louvain.

Antwerp.

The port of Antwerp is situated on the right bank of the Scheldt, at a distance of 35 km. from the sea. The river is wide and deep, and the tide runs far up it, so that ships of the largest tonnage can berth at its wharves without difficulty.

The port comprises two parts : the wharves along the river, and the docks which are accessible by locks. The wharves along the Scheldt, as explained in detail below, have an approximate length of 5,500 m., while that of the docks is approximately 18 km. ; the railway system of the whole port covers about 170 km.

There are fourteen docks : ten at the north end (provided with three locks), and three, for inland navigation, at the south (provided with one lock), together with another for inland vessels in the Canal de la Campine.

Antwerp also possesses a landing-stage above the town for unloading petroleum.

The port has no less than twelve dry docks (no floating docks).

The sheds cover a total area of more than 700,000 sq. m., and there are, in addition, many stores and warehouses belonging to the city or to private individuals.

The port possesses nearly 500 cranes, including one fixed crane (120 ton) two 40 ton, one 50 ton, one 30 ton, one 10 ton and one 5 ton cranes ; the remainder (electric and hydraulic) are 2 ton or 1.5 ton cranes (details given below). Mention should also be made of the " Kooltip " in the Campine dock, which lifts 15-ton trucks and unloads them automatically. (Not in working order at present.)

The plant for petroleum covers an area of over 30 km., the number of tanks reaching nearly eighty.

Information regarding Locks.—(*Note.* As all ship measurements are usually given in feet, this measure has been used here.)

Lock of the Bonaparte Dock.—(3 pairs of gates.) Width of entrance 54 ft. ; depth 18 ft. 7 inches (high-tide).

Kattendyck Lock.

Width of entrance 74 ft. 4 in.
Depth 31.7 inches.

Royers Lock.

Width of entrance 76 ft.
Length 594 ft.
Depth 33.6
Length between the piers of waterway 1,410 ft.

The dimensions of the largest vessel which can enter this lock may be as follows :—
Length 545 ft. ;
Beam 70 ft. ;
Draught, at high water, 28 ft:
Draught, at low water, 30 ft.

Dry Docks.—No floating docks.

Belonging to the City.	Length available for use.	Width of Entrance.	Height of blocks.	Depth not including blocks.
1	536.8	81.4	3–2 ½	20.5 ½
2	242.2	39.4	2.0	12.4
3	171.3	33.0	1.3	8.88
4	458.2	49.3	3.0	16.11
5	458.2	49.3	3.0	16.11
6	458.2	49.3	3.0	16.11
7	726.9	96.5	4.5	28.0
Hoboken (Cockerill)	400.0	41.0	2.8	17.6
Gruyebeke (Naval shipyards)	315	41.0	2.6	17.0
Antwerp Engineering	330.0	36.0	2.0	11.0
St-Anne (Left Bank)				
id. 1. 2.	330	42.0	2.0	13.0

Docks and Wharves.—The docks and wharves and all the plant belonging to the port are the property of the authorities of the City of Antwerp and under their jurisdiction.

Wharves of the Scheldt.—On the south side only, covering a distance of 5,500 metres.

Rhine Wharf. Length 2,152 ft.
Depth at high tide 40 ft.
» » low tide 26 ft.
Plant : 4 movable cranes (2 tons & 1 ½ tons).

Van Meteran Wharf. Length 443 ft.
Depth at high tide 40 ft.
» » low tide 26 ft.
Plant : 5 cranes lifting from 1 ½ to 2 tons.

Ortelius Wharf.	Length 410 ft. Depth at low tide 40 ft. » low tide 26 ft. 5 cranes lifting 1 ½ to 2 tons.
Jordaens Wharf.	Length 787 ft. Depth at high tide 41.6 ft. » » low tide 27.6 ft. 5 cranes lifting from 1 ½ to 2 tons.
Van Dyck Wharf.	Length 902 ft. Depth at high tide 43 ft. » low tide 29.2 ft. 5 cranes lifting from 1 ½ to 2 tons.
Plantin Wharf.	Length 737 ft. Depth at high tide 34.7 ft. » » low tide 30.7 ft. 6 cranes lifting from 1 ½ to 2 tons.
St. Michel Wharf.	Length 902 ft. Depth at high tide 46 ft. » low tide 32 ft. 7 cranes of 1 ½ to 2 tons.
Cockerill Wharf.	Length 1,214 ft. Depth at high tide 48 ft. » low tide 34.2 ft. 15 2-ton cranes.
Station Wharf.	Length 1,479 ft. Depth at high tide 42.6 ft. » low tide 29 ft. 9 cranes: 6 3-ton, 3 1 ½-ton.
Herbouville Wharf.	Length 5,085 ft. Depth at high tide 40.6 ft. » low tide 27.6 ft. 54 2-ton cranes, 2 2 ½-ton cranes.
Ledeganck Wharf.	Length 1,640 ft. Depth at high tide 39 ft. » low tide 26 ft. 9 cranes: 6 3-ton, 3 1 ½-ton. 1 fixed 50-ton electric crane.

DOCKS.

Bonaparte Dock.	Length 493 ft. Width 558 ft. Length of wharves 2,133 ft. Width at entrance 46 ft. Average depth 21.6 ft. 15 movable cranes lifting 2 and 1 ½ tons.
William Dock.	Length 1,247 ft. Width 493 ft. Length of wharves 3,315 ft. Width at entrance 54.6 ft. Average depth 21.6 ft. 27 cranes lifting from 1 ½ to 2 tons.
Junction Dock (joining the William Dock to the Kattendyck Dock).	Length 1,247 ft. Width 164 ft. Length of wharves 557 ft. Width at entrance 57 ft. Average depth 24 ft. 4 cranes lifting from 1 ½ to 2 tons.
Kattendyck Dock.	Length 3,149. Width 460 ft. Length of wharves 6,496 ft. Width at entrance 81 ft. Length of dock 361 ft. Depth 22.4 ft. 3 fixed cranes lifting 20, 40 and 120 tons. 43 movable cranes lifting 1 ½ to 2 tons.
Mexico Dock. (Wood Dock).	Length 1,859 ft. Width 451 ft. Length of wharf 4,331 ft. Width at entrance 47.6 ft. Depth 23.6. 13 movable 2-ton cranes.
Campine Dock.	Length 1,127 ft. Width 527 ft. Length of wharf 2,822 ft. Width at entrance 47.6 ft. Depth 26 ft. 1 hydraulic coal-hoist of 45 tons. 17 movable 2-ton cranes.

Canal Dock (Asia Dock).	1 ore lighter with 2 movable cranes. Length 223 ft. Width 336 ft. Length of wharf 5,102. Width at entrance 47.75 ft. Depth 26.3 ft. 32 movable cranes (20 2-ton cranes and 12 1½-ton cranes).
Lefebre Dock (Amerika Dock).	5 movable hydraulic cranes lifting 1½ to 2 tons. 11 movable 2-ton electric cranes. Area 31 ½ acres. Length 1,003 ft. Average width 460 ft. Length of wharves 5,807 ft. Width at entrance 72.2 (Royers lock). Depth 30 ft.
Amerika Dock.	Area 18 acres. Length 1,314 ft. Width 601 ft. Length of wharves 5,009. Depth 30 ft. 34 movable cranes lifting from 1 ½ to 2 tons of grain. 12 floating cranes (grain elevators, capacity 150 tons per hour.)
Junction Dock (between Lethere Dock and Kattendyck Dock).	Length of dock 377 ft. Width 104 ft. Length of wharves 558 ft. Width at entrance 52.6 and 56.2. Depth 24.50 and 22.50 ft.

INTERMEDIATE DOCKS.

Canal Dock.	Length 2,149 ft. Width 820 ft. Length of wharves 5,807 ft. Width at entrance 72.2 ft (entrance by Royers lock).
Sea Canal.	Length 3,881 ft. Width 820 ft. Length of wharves 4,922 ft. Width at entrance 72 ft. Depth 30 ft.

First Wet Floating Dock.	Length 1,722 ft. Width 591 ft. Length of wharves 4,035 ft. Width at entrance 72 ft. Depth 30 ft. (entrance by Royers lock). 1 movable 30-ton electric crane and 7 movable 2-ton electric cranes.
Second Wet Floating Dock.	Length 2,428 ft. Width 656 ft. Length of wharves 5,512 ft. Width at entrance 72.2 ft. Depth 34 ft.
Third Wet Floating Dock.	Length 3,150 ft. Width 656 ft. Length of wharves 6,956 ft. Width at entrance 72.2 ft. Depth 37 ft.
Brick Dock.	Length 741 ft. Width 104 ft. Length of wharves 1,732 ft. Width of entrance 40.6 ft. Depth 17.6 ft. One movable crane lifting 1 ½ tons (entrance by old lock).
Coal Dock.	Length 807 ft. Width 164 ft. Length of wharves 1,854 ft. Width of entrance 36 ft. Depth 18 ft.
Boatmen's Dock.	Length 873 ft. Width 213 ft. Length of wharves 1.936 ft. Width of entrance 40.6 ft. Depth 17.6 ft.

Ghent.

This port is connected with the sea from Terneuzen by a canal of 19 miles.

The principal lock allows the passage of ships of 460 ft. in length, 56 ft. in breadth and 26.506 ft. in depth.

Outer Harbour.

Length 3,606 ft.
Width 295 ft.
Length of wharves 3,606 ft.
Depth 22 ft.
8 1½-ton electric cranes.

Commercial Dock.

Length of wharves 5,575 ft.
Depth 18 ft. 8 in.
Width at entrance 56 ft.
Width of entrance dock 330 ft.
4 2½-ton cranes.

Dry Docks (town).

Length available for use.	Width available for use.	Depth with block.
1,446 ft.	42 ft. 8 in.	179 ft. + 2 ft. 9
2,255 ft.	36 ft. 0 in.	149 ft. + 2 ft. 9

Wood Dock. 755 ft. 410 ft. 19 ft.

Tolhuis Dock. 1,310 ft. 305 ft. 21 ft.

New Dock. 6,970 ft. 590 ft. 26 ft. 6 in.
Length of wharves 5,970 ft.
15 2½ ton electric cranes in all.

Central Wet Floating Dock.

Length.	Width.	Depth.
1,440 ft.	460 ft.	26 ft. 6 in.

Length of wharves 2,034 ft.
6 2½ ton electric cranes in all.

North Wet Floating Dock.

Length	Width.	Depth.
1,640 ft.	820 ft.	13 ft. 4 in.

Length of wharves 3,797 ft.

Zeebrugge.

Harbour of Refuge. This is formed by a pier 8,160 ft. in length, with wharves of 25 to 36 ft. The six electric and ten steam cranes are being refitted.

Canal (connecting Harbour of Refuge with lock.)

Length 2,461 ft.
Width at water-line 150 ft.
With at bottom 365 ft.
Depth at low water 20 ft.

Lock.	Length 840 ft. Width 66 ft. Depth at low water 18 ft. (The sea-lock has been repaired.)
Inner Harbour.	Length 2,231 ft. Width at water-line 316 ft. Width at bottom 165 ft. Depth 26 ft.
New Locks.	Length 1,449 ft. Width at water-line 478 ft. Width at bottom 334 ft. Depth 26 ft. 4 in.
Bruges Canal.	Length 6¼ miles. Width at water-line 72 ft. Width at bottom 30 ft. Depth 26 ft. One 50-ton floating steam crane. Part of this canal has wharves of a total length of 14 ft. 10 in. These wharves are furnished with cranes etc., belonging to private companies. At present this canal has been emptied in order to raise the ships sunk in it, but vessels will shortly be able to enter it for unloading. The plant at Bruges was severely damaged during the war. The docks have still to be emptied and cleaned; in the meantime steamers with a draught of 24 ft. unload at the Mole.

Bruges.

East Dock.	Length 682 ft. 6 in. Width 275 ft. Depth 26 ft. Length of wharves 2,035 ft.
North Dock (or "Manœuvre" Dock).	Length 794 ft. Width 750 ft. Depth 26 ft. 3 in. Length of wharves 395 ft.

West Dock.	Length 1,772 ft. Width 295 ft. Depth 26 ft. Length of wharves 2,025 ft.
Semi-maritime Lock (connecting West Dock with Ostend - Bruges Canal).	Total length 565 ft. Length between gates 320 ft. Width of entrance 39 ft. Depth of entrance to Ostend Canal 15 ft. 6. in.
Old Docks.	Length 820 ft. Width 393 ft. Depth 20 ft. Length of wharves 1,213 ft. (Steamers of 171 ft. in length and 36 ft. in width can reach Bruges with a draught of 14 ft. (13 ft. 6 in in winter).
Plant.	At present lacking, but several movable electric cranes lifting from 1 ½ to 4 tons, together with a large 55-ton floating crane, will shortly be installed.

Ostend.

Tidal Dock.	Length of wharfage reserved for merchant vessels : 1,148 ft. Length reserved for government vessels : 574 ft.
Old Dock, (giving access to 1st and 2nd docks).	Length 180 ft. Width 38 ft. Depth at high water 18 ft. Depth at low water 15 ft.
First Dock.	Length 918 ft. Width 197 ft. Length of wharves 216 ft. Depth (low water) 18 ft. One 10-ton crane.

Second Dock.	Length 557 ft. Width 328 ft. Length of wharves 1,574 ft. Depth (low water) 15 ft.
Wood Dock, 3rd Dock.	Length 460 ft. Width 312 ft. Length of wharves 3 ft. Depth (low water) 12 ft.
Fishermen's Dock. (Tidal.)	Wharves.
Dry Dock.	Length 885 ft. Width 285 ft. Length of wharves 2,033 ft. Length available for use 328 ft, Width available for use 33 ft. Depth with blocks 164 ft. + 1 ft. 8 in.
New Wharf (Entrance, destroyed during the war, is under reconstruction).	Length 2,800 ft. Depth (low water) 34 ft. Depth (high water) 38 ft. One 3-ton electric crane, five 5-ton steam cranes, one large 50-ton crane.
New Dock (Nouvelle Cale).	Length available for use 440 ft. Width available for use 60 ft. Depth (low water) 16 ft. Depth (high water) 32 ft. (Ships of greater length than 440 ft. can enter the New Dock at high tide, when the lock-gates are open).
New Dock (Nouvelle Bassin).	Length of dock 2,500 ft. Width 300 ft. Length of wharf 5,000 ft. Width at entrance 58 ft. Depth 28 ft. Four 2-ton electric cranes; five 5-ton steam cranes.
New Wood Dock.	Length of wharves 4,500 ft. Depth 24 ft.

Nieuport.

The installations of this port were completely destroyed during the war, and their reconstruction is at present well advanced.

Brussels.

Antwerp is connected with Brussels by a ship canal of recent construction, of the following dimensions :

Length 47 km.
Width at surface of water 300 ft. (maximum).
Width at bottom 18 ft. (minimum).
Depth 19 ft. 6 in.

Dimensions of Docks.

Length 350 ft.
Width 48 ft.

Vergole Dock.

Length 2,300 ft.
Width 394 ft.
Width of entrance 52 ft.
Depth 21 ft.
One 10-ton electric crane.
10 electric cranes of various lifting capacities.

Junction Dock.

Length 1,968 ft.
Width 131 ft.
Width of entrance 39 ft.
Depth 11 ft. 6 in.
One 20-ton electric crane.
Four cranes of various sizes.

Boatmen's Dock.

Length 1,640 ft.
Width 121 ft.
Width of entrance 39 ft.
Depth 10 ft.
Two 2-ton electric cranes.

Louvain.

Connected with Antwerp by a canal 11.5 ft. deep.

	Length	Width	Delpht
Large Dock.	675 ft.	91.5 ft.	11.5 ft.
Small Dock	382 »	90.5 »	11.5 »
Beerkoom Dock.	623 »	66 »	11.5 »

B. **Strength of Belgian Mercantile Fleet.**

Above	5,000 t. gross	. . . . .		30	vessels	(174,858 t. gross)
»	4,000 »	and less than	5,000 t.	17	»	(48,773 »)
»	3,000 »	»	4,000 t.	18	»	(62,302 »)
»	2,000 »	»	3,000 t.	40	»	(115,322 »)
»	1,000 »	»	2,000 t.	36	»	(85,334 »)
»	500 »	»	1,000 t.	27	»	(14,208 »)
Under	500 tons	. . . . .		23	»	(5,247 »)

Total: 200 steamers (496,106 t. gross)
9 sailing ships with auxiliary motors (6,780 t. gross)
4 sailing ships (3,158 t. gross)
213 ships (506,044 t. gross).

Belgian passenger ships.

(Belgian Government) Above 23 knots and turbine.

SS. Jan Breydel 1,767 tons.
» Pieter de Coninck 1,767 tons.
» Princesse Elizabeth 1,767 tons.
» Stad Antwerpen 1,384 tons.
» Ville de Liège 1,766 tons.

Above 20 knots and below 23 knots.

SS. Princesse Clementine 1,474 tons.
» Princesse Henriette 1,094 tons.
» Rapide 1,195 tons

Above 13 knots.

SS. Albertville 7,745 tons.
(Cie. Belge Maritime du Congo).
» Anversville 7,694 tons.
(Belgian Congo Service).

Above 14 knots.

SS. Rubis (J. Cockerill & Co. London) 633 tons.
» Saphir (J. Cockerill & Co. London) 633 tons
» Topaze (J. Cockerill & Co, London) 634 tons
» Gothland (Red Star Line, New York Line) 7,660 tons.
» Samland (Red Star Line, New York Line) 9,748 tons.

Above 11 knots.

SS. Clara Blumenfeld. Erfurt Sydney, Greiffenfels, Bonnenfels, Itauri.

Builders of Steel Ships, Marine Boilers and Repair Works.

Antwerp.

Antwerp Engineering Co., Ltd., Antwerp (repairs).
Cockerill, Hoboken (builders).
Antwerp Engineering Co., Hoboken (builders).
Belgian Ship-repairing Co. (repairs).
Former Kruger Works (repairs).
Gutherie Murdock & Co. (repairs).
Mercantile Marine Engineering Co. (repairs).
Biliard Creighton & Co.'s Repair Works (repairs).

Boom.

V. van Laume & Sons, Baesrede (builders & repairers).
G. Stockers & Co.'s Ship Works (builders & repairers).
Garels Bros. & Co.'s Factory (machinery).

Hoboken.

Grandes Chaudronneries de l'Escaut Co. (boilers).

Ghent.

Anglo-Belgian Naval Construction Co. (repairs).

Ostend.

Letzer & Co. (repairs).

C. **Freights.**

a) *Increase in passenger freight.* The cost of transporting passengers has increased enormously since the pre-war years.

b) *Increase in goods freight.*

Timber from the North.	1914 (in francs) *per standard.*	1920/1921 (in francs) *per standard.*	
From the Baltic to Antwerp	30/35	900/200	
From Norway to Antwerp	18/20	500/110	90
Coffee from Rio and Santos to Antwerp per ton.	40	200/120	100
Fruit from Spain and Italy to Antwerp	25	350/150	100

Grain from the Argentine to Antwerp	25/30	250/120	80
Northern U.S.A. to Antwerp	8/10	200/100	
Provisions U.S.A. to Antwerp	15/32	400/300	100
Cotton New Orleans to Ghent, Antwerp	80/100	560/300	90
Wool Australia to Antwerp	90/100	800/600	400
Wine Bordeaux to Antwerp	20/25	150/80	60
Tobacco U.S.A. to Antwerp	50/60	600/550	
Java to Antwerp	80/100	750/600	
Sumatra to Antwerp	140/160	1300/1200	
Petroleum America to Antwerp	0.02 per litre	0.32/0.25 p. l.	
Antwerp to Congo.			
Coal	22.50	110/100	
Coke	30.00	165/150	
Salt	40.00	160/140	
Congo to Antwerp.			
Rubber	28/30	385/300	
Copal	28/30	275/230	
Cocoa	35/38	325/300	
Palm Oil	35/38	375/350	
Coffee	25/30	325/300	
Pepper	25/30	425/400	
Raffia	28/30	650/580	
Wood	28/30	350/325	
Rice	28/30	320/300	
Ivory	28/30	850/800	
Spain to Antwerp.			
Ore	10/12	140/50	30
England to Antwerp.			
Coal	4/5	140/25	16

D. **Bunker coal.**

The price of bunker-coal in Belgian ports has undergone a considerable increase since the pre-war period. During the years 1919 and 1920, English coal was commonly sold at 400 to 525 francs per ton, while Belgian coal, which was for the most part of inferior quality, was quoted at 165 to 250 francs.

Belgian briquettes were sold at 170 to 200 francs according to season, and, as a general rule, owners only took in at Antwerp such bunker-coal as was absolutely indispensable.

Towards the end of 1920 German coal was sold in the market, and was then quoted at 165 to 260 francs. This coal was, as a rule, extremely unreliable, and it was almost invariably of doubtful quality, as was the

majority of German coal delivered to Belgium under the terms of the Peace Treaty. Good quality Westphalian bunker-coal, such as was usually sold in Belgian ports before the war (consumption 1 million to 1 ½ million tons per annum), is unobtainable. To sum up: there is little demand for the German coal offered at present, and preference is always given to English coal, the quality of which, although inferior to that of the pre-war period, is none the less reliable.

The English coal used is especially "unscreened Durham and Northumberland" and the various grades of Welsh coal, pit-mouth, large or small, mixed in various proportions.

Mixed Belgian and English coal is commonly offered for sale, but shipowners very often hesitate to purchase this kind of bunker-coal, as they are unaware of its nature and actual quality.

During the last months of 1920, American coal was imported in comparatively large quantities; this coal is satisfactory as bunker-coal, although 20 % more of it than of English coal must be consumed to produce the same amount of energy. The price of this coal varies from 350 to 175 francs

IV.

MOTOR AND AIR TRANSPORT.

Motor Transport.

As an experiment, the railway authorities are using 2 to 4 ton motor-lorries in place of horse-vans for the delivery of goods in the Antwerp area. This experiment will very shortly be extended to the van distribution service in Brussels.

Air Transport.

The question of air transp for certain classes of postal packages will shortly be considered.

BOLIVIA.

The geographical situation of this Republic, in the centre of South America, left since 1879 without an outlet to the sea, is a hindrance to her commercial development, and adds greatly to the cost of maintaining her trade relations with the other nations of the Old and New World.

The lack of a port which could serve as a base for her commerce—either for the export of her natural and manufactured products, or for the import of those offered to her by oversea countries—forces the Republc of Bolivia to depend upon the good-will of her neighbours and to conclude with them commercial treaties which may prejudice her economic and financial interests.

All the Bolivian Governments, however, are working hard on the construction of railways, often at great sacrifice, for the sole purpose of establishing connections with the railways running from every direction up to Bolivia's frontiers, *viz:*

In the direction of Chile, the railway belonging to the English company starts from Antofagasta and runs to Oruro, a mining town in the centre of Bolivia.

Another line runs from the Port of Arica to La Paz. This railway was constructed as the result of a Chilian-Bolivian treaty, which grants a reduction of the freight tariffs for natural and manufactured products on this line, as compensation for the financial assistance lent by Chile.

In the direction of the Argentine, the Bolivian railways are soon to be connected with the Central North Argentine Railway, which is one of the most important lines in that country, and starts from its capital, Buenos Aires.

On the west, Bolivia is connected with Peru by the railway from Mollendo, a Peruvian port, and by the boat services on Lake Titicaca.

Finally, the Bolivian railways are endeavouring to establish connections with those of Brazil; the Madera-Mamore line almost reaches Bolivian territory and will soon be connected to the Brazilian system.

Within Bolivia, a number of State lines are being constructed out of the public funds. This work is being carried on without interruption under direct contract with various firms, such as Speyer & Co. and the "National City Bank" of New York. These lines appear in the following table:—

I

RAILWAYS.

In 1920 the Bolivian railway lines in operation and under construction, covered 2,261 kms., the details being as follows :—

In operation :

The Antofagasta and Bolivia Railway Company Limited, Antofagasta-Oruro (925 kilometres, not including secondary and branch lines).

(Sec. Boliviana)	486	km.		
Viacha-La-Paz	29	»		
Ramal-al-Kenko	8	»		
			523	km.
Compagnie " Huanchaca " de Bolivie.				
Branch of the main line Antofagasta-Uyuni (without State guarantee)	38	»	38	»
The Bolivia Railway Company (with guarantee)				
Viacha-Oruro	202	»		
Rio Mulato-Potosi	174	»		
Oruro-Cochabamba	205	»		
Uyuni-Tupiza-Antocha	90	»		
			671	»
" Luz y Fuerza Cochabamba " (with guarantee).				
Cochabamba-Vinto.	18	»		
Cochabamba-Arani.	63	»		
			81	»
Arica-La Paz Railway.				
Arica-Alto from La Paz, 439 kilometres.				
Sec. Boliviana.			233	»
Simon I. — Patino (without guarantee).				
Machacamarca to kilometre 60	60	»		
Branch line of the Corocoro (State property)				
Branch line from the main line of Arica. .	8	»		
Potosi-Sucre Railway (State property).				
Section open to traffic	495	»		
Yungas Railway (State property).				
Section to be opened to traffic	35	»		
The Peruvian Corporation Limited (without guarantee).				
Guaqui-La Paz	98	»	696	»
Total			2.242	»

In course of construction.

Simon I. — Patino.				
Brought forward			2,242	km.
Machamarca-Uncia			44	»
State Lines.				
La Quiaca-Tupiza	100	km.		
Potosi-Sucre	128.5	»		
La Paz-Yungas (about)	91	»		
Uyuni-Tupiza (Section to be constructed).	104	»		
			423.5	»
Total			467.5	»

Summary.

Total in permanent and provisional operation	2,242	km.
In course of construction and to be constructed	467.5	»
Total	2,709.5	km.

The fractions have been made up to the next larger unit.

Lines belonging to the Bolivian Railway Company.

Up to June 30 of this year, the Bolivian Railway Company spent on its various lines £6,589,001 /7 /2, making a total, with guaranteed interest, of £7,339,001 /7 /2.

In the construction of different lines during the year 1919 and the first half of this year, the Company has spent the sum of £185,884.12 /10 on its own account, without any State responsibility. A calculation of expenditure up to June 30, 1920, shows that the construction of railways has cost £6,589,001 /7 /2., while the bonds issued have brought in only £ 5,500,000. The surplus of expenditure, amounting to £1,089,001 /7 /2, was met by another issue of bonds exclusively by on the Company's account. The Company has, moreover, advanced another sum representing the value of material on the spot and in transit amounting to £172,633 /19 /11.

The issue of first mortgage bonds produced a sum of £3,750,000 which, with a discount of 20%, gave a net yield of £3,000,000. Second mortgage bonds, which represent the same value at par, produced a sum of £2,500,000.

According to the report of the fiscal inspectors of railway accounts, the available sum at the banks for the payment of interest on first mortgage bonds, up to June 30 of this year, would be £282,129 /16 /6.

The total amount on December 31, 1919, was £ 288, 031 17 9 : that is to say, it has decreased in the first half year of 1920 by £4.902 1 3.

Viacha-Oruro Line.

This line has been working regularly. Net expenditure amounts to £ 1,220,283/18/2. 60 % of this sum corresponds to first mortage bonds guaranteed by the State, upon which interest is paid at the rate of 5 % annually.

Rio Mulato-Potesi Line.

No construction work of any importance on this line has been undertaken this year. It has maintained a regular service.

In 1919, the traffic was as follows :

Passengers	12,608	Bs.	91,802.89
Luggage and parcels	362	»	27,608.65
Goods	15,749	»	410,048.36
Express trains, telegrams, etc.		»	10,688.15
		Bs.	540,098.05
Monthly average		Bs.	46,008.17
Monthly average in 1918		»	52,908.46
The difference of		Bs.	7,900.29

is due to the decrease in the tonnage of goods carried, which in 1918 amounted to 20,392 tons, and in 1919, to 15,749.

Oruro-Cochabamba Line.

In 1919, the traffic was as follows :

Passengers	81,669		Bs.	396,410.08
Luggage and parcels	862	Tns	»	71,559.64
Goods	29,321	Tns	»	823,108.19
Express trains, telegrams, etc.			»	11,558.28
Total			Bs.	1,302,636.19

or a monthly average of Bs. 108,553.01 against Bs. 94,662.51 in 1918.

Oyuni-Alucha Line.

In the year 1919, the traffic on this railway was as follows :

Passengers	17,812	
Luggage and parcels	362	tons
Goods	17,224	»

Guaqui Railway.

Traffic on this railway in the year 1919:

Passengers	52,708	
Luggage and parcels	361	tons
Goods	46,169	»

Potosi-Sucre Line (Under construction).

The cost to the National Treasury up to date has been Bs. 4,540,000.

Atocha—Tupiza—La-Quiaca Line.

This line, which is to connect the Argentine with the Bolivian system, is almost completed.

The cost of construction up to date to the Vezin firm is Bs. 4,079,862.36.

Cochabamba Santa Cruz Line (In course of construction).

It is intended to connect this line with the Brazilian Railways, as explained at the beginning of this report.

La-Paz-Yungas Line.

The cost of construction of this line to the present date has been Bs. 11,694,970.61. All the money received has been paid to the construction company.

II

RIVER NAVIGATION.

Bolivia also possesses a very large number of navigable rivers. Only the most important of these, however, are used for the transport of her products to the principal Atlantic ports, and particularly to her neighbours, Brazil, Paraguay, and Peru.

The large Bolivian rivers, the Beni, the Mamore and the Madera are the principal tributaries of the great Amazon River, which flows into the Atlantic Ocean. They keep us in touch with Brazil, with which country we share the use of all these rivers.

With Peru, we share the navigation of the rivers Rio Mapiri-Madre de Dios. One of the reasons why we have established a common river navigation service with our neighbour, is that for years, both in this country and

in Brazil, the banks of these rivers have produced rubber, as is the case throughout South America.

Finally, towards Uruguay, we have the rivers El Plata and the Pelcomayo, which flow through Bolivia and Paraguay into the South Atlantic.

The future development of Bolivia depends on the development of navigation on the rivers already mentioned and on many others.

III

MOTOR TRANSPORT.

Whilst work on the railways in Bolivia has been proceeding, motor transport services have been established, as in the Argentine, in the Southern section from Sucre to Potosi. From Cochabamba to Santa Cruz, in the districts where there is more commercial activity, passenger services have been introduced.

ANNEX.

Convention regarding Commercial Traffic between Chile and Bolivia.

Reduction of Freight Rates.

M. Albert Gueirrez, Envoy Extraordinary and Minister Plenipotentiary of Bolivia, on the one hand, and M. Emilio Bello Cobesilo, Minister for Foreign Affairs of Chile, on the other hand, both duly accredited by their respective Governments, having met on October 20, 1904, at Santiago de Chile in the office of the Minister for Foreign Affairs, agreed as follows:

Whereas the Governments of Bolivia and Chile, when signing the provisions contained in the Treaty of Peace, agreed to substitute for the Customs exemptions requested by Chile in favour of her natural and manufactured products, facilities which would not run counter to the desire of Bolivia to preserve her commercial liberty intact,

And whereas these two Governments agreed to insert, in a separate instrument, the provision set forth in the fifth paragraph of Article 3 of the aforesaid Treaty, regarding trading facilities to be specified in subsequent Conventions,

On the railways constructed in Bolivian territory, the natural and manufactured products exported by Chile to Bolivia will be granted, under the guarantee of the Chilian Government, a minimum reduction of 10 per cent. on the freight rates in force on the aforesaid railways.

The Bolivian Republic will take the necessary steps to ensure that the same advantage is granted to Chilian products on the Bolivian section of the railway from Antofagasta to Oruro.

The special Conventions which the Governments of Bolivia and Chile will conclude with regard to the construction of railways, in conformity with the provisions of Article 3 of the Treaty of Peace, and the contracts relating to the construction and operating of the various secondary lines of the country, will accordingly include undertakings to concede the aforesaid reduction to Chilian products.

In faith of which the Envoy Extraordinary and Minister Plenipotentiary of Bolivia and the Minister for Foreign Affairs of Chile have signed the present Protocol in duplicate, and have affixed their respective seals thereto.

(Signed) Albert GUEIERREZ.
Emilio Bello COBESILO.

BRAZIL.

In conformity with the scheme of work of this Conference, we are submitting a short statement dealing with the transport situation in Brazil considered from every point of view. For this purpose it is desirable to begin with a general description of the country, regarded from the standpoint adopted by this Conference. This preliminary survey will reveal the weighty reasons which have induced Brazil to seek here the solution of the important problems with which it is proposed to deal.

* * *

Situated in South America, Brazil, owing to her special geographical conformation, presents at first sight the appearence of a continent enclosed within a continent. Brazil is almost entirely surrounded by water, the largest block of her territory being welded on its western side to the foothills of the Andes range by a line of low ridges. Near the isthmus constituted by these ridges, the headwaters of the great rivers, the Amazon and the Paraguay, almost meet. From this region they flow swiftly, one northward and the other southward, along the vast valleys by which their waters, ever increasing in volume, find their way to the Atlantic, into which they hurl themselves, excavating the gulfs which form the vast estuaries of the Amazon and the Rio de la Plata. Thus we see emerging like a gigantic island, with an average altitude of 1,000 meters, the Central Plateau of Brazil, around which extend the low-lying lands of the sea-coast, the immense level of the Amazon basin, and the plains of the Paraguay, Parana and Uruguay valleys. On the left bank of the Amazon the Brazilian territory rises, forming the southern slope of the plateau of the Guianas.

To complete this preliminary outline of Brazilian geography, it is only necessary to remember that the country borders on all the South American Republics, with the exception of Chile and Ecuador. The following are her boundaries : on the north, French, Dutch and British Guiana and Venezuela ; on the north-west, west and south-west, Colombia, Peru, Bolivia, Paraguay and the Argentine Republic ; on the south Uruguay ; on the south-east, east and north-east, the Atlantic Ocean. Thus you will see how Brazil is a country naturally destined, by her geographical situation, to play an extremely important rôle in the countless questions of transport, international communications and transit.

In order, however, to get a clear idea of this rôle, we must complete, by some other characteristic touches, the survey of the orography and hydrography of Brazil. The Central Plateau of Brazil is connected to the eastern slope of the Andes, and is buttressed by a system of mountain chains, the framework of which is formed by two principal ranges. The first of these is near the sea, which it borders for a long distance between the 30th and 19th parallels, and then runs, further from the coast but still in a northerly direction, as far as the gap made by the Sao Francisco River, beyond which this chain reappears in the form of the fragment which was its highest summits in the State of Ceara ; such is the great eastern mountain chain, which includes the Sierra do Mar and its northern extensions. The other feature, the central range—*i.e.*, the Sierra Central, —which joins on to the first near the sources of the Sao Francisco, penetrates into the interior of the country and includes the mountains in the States of Minas-Geraes, Goyaz, Bahia ; it terminates very nearly in the centre of the longest north-to-south diameter of the Central Plateau, in which its slopes gradually merge and disappear. These two main features of the Brazilian plateau determine the natural conformation of its river system. On the two sides of the central range and of an imaginary line prolonging this range across the plateau, the waters follow three main slopes : the northern slope, the southern slope and the north-eastern Atlantic slope.

From the plateau of Formoza, at the site chosen for the future Federal Capital of Brazil, these three slopes are simultaneously visible. The Amazon receives the watercourses which flow towards the north ; those which take a southerly direction form the rivers Paraguay, Parana and Uruguay, and combinein the estuary of the Rio de la Plata ; while the waters which flow north-east towards the Atlantic constitute the basin of the Sao Francisco and the basins in the State of Maranho, including Parahyba and Gurupy valleys.

To these three main river systems there must be added, on the one hand, the great secondary watercourses such as the Jequitinhonha and the Parahyba, which plunge straight from the heights of the Sierra do Mar to the low-lying coastal lands, where they flow gently till they reach the sea ; and, in the extreme north, the southern part of the basin of Oyapock ; and, in the extreme south, the very remarkable hydrographic system of the State of Rio Grande do Sul. There are thus the most varied types of rivers in Brazil ; rivers in the plain, whose waters encounter no obstacle such as the Amazon ; rivers in the plateau, rich in magnificent waterfalls, like those of Iguassu, of Paulo Affonso, of the Sete Quedas ; and, finally, rivers of mixed type, which appear first as waterfalls and then meander slowly towards the sea. A great number of the first class, the rivers in the plains, are navigable throughout their courses ; those of the second class are navigable in their longest stretches, both when they flow evenly across the plateau, and when, having plunged down its abrupt slopes, their waters once more flow calmly, deeply furrowing the soft soil across which they wend their way to the sea. The rivers of the last class are only available for navigation in their lower reaches. It may therefore be said without exaggeration that Brazil possesses a natural system of communication which unites

her remotest districts, though these are in some cases as much as 6,000 kilometres apart.

While pointing out the advantages of this natural system of transport routes, we have not forgotten that it by no means fulfills the conditions requisite for a truly industrial system of transportation. It is a natural marvel which requires to be completed by much human handwork before it can fully meet either present or future economic requirements. Much of this work has already been carried out ; some rivers have been improved with a view to navigation ; railways have been constructed in order to connect the navigable portions of others or to bring remote valleys within reach. It is necessary, however, to continue constructing fresh railways, high roads available for motor traction, and canals connecting the river routes. In many places the beds of the canals which must be constructed have already been dug by nature in the form of deep, broad and long ravines, like those which occur in the Central Plateau. In this connection it may be observed that a canal 4,800 metres long—as d'Orbigny proposed—in the marshy region where the last tributaries of the Amazon merge with the first tributaries of the La Plata, would provide Brazil with a gigantic continuous canal which would connect these two great basins and serve the whole central portion of South America. That is how man can assist nature by completing her marvellous work.Some of the work suggested may indeed prove difficult. But when we compare the efforts which it would require with the greatness of the results which it would yield, and consider the physical conditions—which are certainly in many cases difficult but on the whole favourable—there can be no doubt that it would be possible, without excessive exertion, to provide Brazil with a system of transport routes which, by its extent and situation, would possess a value not merely national or continental, but—we say it in no spirit of boastfulness—world-wide. It was to demonstrate this fact that we have submitted this survey of the geographical conditions of our country.

* * *

You have seen that Brazil—situated in the heart of South America—provides the chief connecting links between the various Republics which surround her. Let us consider her now in her relation to other continents.

Thanks to the Atlantic, on which she has a coas-tline of more than 6,000 kilometers, Brazil may be regarded as a neighbour of the Old World. By the trans-oceanic routes, which have their terminal at various points along her vast littoral, she is connected even with the most distant countries. She is thus in direct connection with North America and, *via* the Cape of Good Hope, with the Far East ; the shortest distance between Europe and South America is that from Cape St. Vincent to Cape St. Roque, the most easterly point in Brazilian territory. Pernambuco is nearer than any other South American port to the European ports. Again, opposite the Brazilian coast, the African shore juts out, and these two coasts approach each other so closely that the interval between the Old and New Worlds

can now be crossed in less than three days. Thus, in considering the relative position of the ports of Dakar and Pernambuco, one cannot but think of the relations which will be maintained through them, in the future, between the African and the South American railway systems. It may indeed be foreseen that, for purposes of rapid transportation, these two railway systems, united by the sea route Pernambuco-Dakar, will one day be permanently in communication with each other. The railway, which will unite Western and Northern Africa, will thus have as its South American extensions two railways which will start from Pernambuco and connect that city, one with Monte Video, and the other, across Bolivia, with Chile and Peru by means of the railways terminating at the ports of Antofagasta and Molliendo. Owing to the numerous waterfalls, electric traction can be employed on a large scale on these railways. Thus, it is clearly through Brazil that the best southern communications can be established between the two great oceans which wash the east and west coasts of America; and that the Republics of the Plata and those of the Pacific can be kept in closest touch with southern and western Europe.

It would be superfluous to emphasize the importance of the international position of Brazil in regard to the world problems of transit and transportation. This observation leads us to note the natural conditions upon which Brazil bases her policy in regard to transport, transit, and communications between the different nations. This policy may be summed up in the following words: to respect freedom of navigation and transit over routes forming part of the general international system, and at the same time to respect the sovereignty of each State over the waters and the routes which are an integral part of its own territory.

We will now supplement these general remarks by the following notes on special points.

I.

RAILWAYS.

The rails of the first Brazilian railway were laid in 1852; this first system started from the port of Maua in the bay of Rio de Janeiro. Two years later the rail had reached the foot of the Serra of Petropolis, which it later climbed, following the course of the Piabanha river. Later, it was extended towards the city of Entre Rios, thus approaching the State of Minas Geraes.

The Central Railway.—In 1858 the first section of another railway, which was later to cover a considerable area, was inaugurated: the Don Pedro II Railway, which is today the Central Railway of Brazil.

Thus originated the two large systems which serve and connect the States of Rio de Janeiro, Mines Geraes, Sao Paulo, and Espirito Santo.

The Central Railway, extending to the north-west into the State of Minas Geraes, connects the capital with a large zone of supreme economic importance, rich in minerals (manganese, gold, etc), coffee, maize, cereals, wood, livestock of all kinds, etc. This railway also connects Rio de Janeiro with the great river Sao Francisco, which it reaches at the town of Pirapora, after covering 1,007 km. 357. The importance of this point, which is at present the terminus, is steadily increasing ; it is a junction of rail and water communication between the valley of Sao Francisco and the Atlantic Coast, and will at no distant date become one of the centres of connexion between that valley and the valley of the Amazon. This great artery, which serves the principal towns of the State of Minas Geraes, is known under the name of "Linha do Centro". Extensive engineering operations have been necessary to enable it to cross several chains of mountains. At a distance of 65 km. from Rio de Janeiro it begins the ascent of the Sierra do Mar, over which it passes by somewhat steep gradients (maximum 0.018 metres), passing through a tunnel 2,237 metres in length, and coming out into the higher valley of the Parahyba river.

At Miguel Burnier, that is to say, at a distance of 497 km. 931 from Rio de Janeiro, it reaches an altitude of 1,126 metres. From that point there is an almost continuous descent to Pirapora (472 metres above sea-level), where the line terminates after following the Rio das Velhas, a tributary of the Sao Francisco, and describing numerous curves (minimum radius of curvature 101.03 metres). The guage is 1 m. 60 as far as Lafayette, that is to say, to the kilometre 462.278 (centre of important iron mines). From Lafayette to Miguel Burnier, the line is of two guages (1 m. 60 and 1 m.). From Miguel Burnier to Pirapora, that is to say, over a distance of 508 km. 009, the guage is 1 metre (maximum gradient 0.020 m.).

The other main artery of the Central Railway connects Rio de Janeiro with the capital of the State of Sao Paulo. It bifurcates at kilometre 108 ; one line — the Linha do Centro — of which we have just given a summary of the principal characteristics, runs northwards ; the other follows a south-westerly direction. The latter was commenced in 1864, and reached its terminus, the " Norto " station at Sao Paulo, in 1875. It covers a distance of 390 km. from the junction of Barra de Pirahy, which makes a distance of 498 km. from Rio de Janeiro to Sao Paulo, following the valley of the Parahyba. The guage is 1 m. 60 over the whole distance, and the highest point (altitude 774 metres) is at 473 km. from Rio de Janeiro.

As regards local lines, we must note the two which serve the suburbs of Rio de Janeiro ; one of 34 km. the other of 1 kilometre in length. There are also three branch lines at Minas Geraes, namely : that of Ouro Preto, that of Bello Horizonte, and that of Santa-Barbara. The first connects the Linha do Centro at the station of Miguel Burnier (497 km. from Rio) with the town of Ouro Preto, the former capital of Minas Geraes ; the second starts from General Carneiro (590 km. from Rio) and terminates at Bello Horizonte, the capital of that State ; the third joins the Linha do Centro at kilom. 582.424 (Sabara) and covers a distance of 76 kilom. as far as Santa-Barbara, its present terminus.

The two large systems of the Central Railway—Linha do Centro and Ramel de Sao-Paulo — are completed by a system which was originally an independent railroad, but was bought by the Federal Government and became the third artery of the Central Railway. It is known as the " Linha Auxiliar ".

The guage on this system is 1 metre ; it starts from the station Alfredo Maia, that is to say, at 2,222 metres from the first station of the original line of the Central Railway, and after covering a distance of 240 km. 108, following the course of the Parahyba, it termina es at Porto Novo in the State of Rio de Janeiro.

At Porto Novo it connects with the Leopoldina Railway, which we shall have occasion to refer to later.

Two branch lines of this system should be mentioned : one starting from Costa Barros (km. 23.183) and terminating at Thonazinho (km. 26.537), the other starting from Governador Portella (111 kilom. 730) and terminating at Juparana (157 km. 993).

A local system (89 kilom. 993) starts from the latter town and terminates at Barboza Gonçalves ; its guage is 1 metre, and the highest altitude, 567 metres, is reached at kilom. 202.775. This system has a branch line (guage 1 metre) which starts from the town of Valença (km. 182.821) and terminates at Barra Longa, that is to say, after covering a distance of 54 km. 095.

We have given a rapid summary of the characteristics of the Central Railway of Brazil — the most important railway system of our country — which connects three large States of the Federation, and which, through its connexions with other systems, is already, and will become to a greater extent, the pivot of communication between the north, the centre, and the south of the country.

We have shown how the Central Railway of Brazil connects the basin of Sao Francisco with the capital, and pointed out that at no distant date this line will also directly connect Rio and the Amazon.

Let us now see how this system is connected with other railway systems.

Compania de Estradas de Ferro Federaes Brasileiras. — In 1881 a railway was commenced at Cruzeiro (State of Sao Paulo), which, under the name of " Minas à Rio ", became in 1884 the connecting link between the Central Railway and an important stock-raising zone. This railway (guage 1 metre), which terminated at the town of Tres Coraçoes, was bought by the Federal Government. Its junction (Cruzeiro station) with the Central Railway is on the line which connects Rio with Sao Paulo (252 km. 155). This railway is now included in the large system known as " Rêde Sul Mineira ", as it serves more especially the south of the State of Minas Geraes.

The Rêde Sul Mineira line is composed of several small railways which were bought by the Federal Government and later taken over by the " Compania de Estradas de Ferro Federaes Brasileiras " (January 2nd, 1902). It is composed of three main lines : Cruzeiro to San Sebastiao de

Paraizo (532 km. 571), Soledade to Sapucachy (269 km. 529) ; Soledade to Passa-Tres (324 km. 788).

As may be seen, Soledade is an important point of bifurcation. It is situated at kilometre 89.394 (altitude 865 metres) on the Cruzeiro-San Sebastiao de Paraizo line.

The Rêde Sul Mineira line is connected to the Mogyana line by a small branch line which starts from the station of Guaxupé (434 km. 770).

The Mogyana line which serves an extremely rich zone of coffee plantations in the State of Sao Paulo, therefore directly connects the south of Minas Geraes with the port of Santos.

The Sapucachy-Soledade line serves a highly productive industrial and agricultural zone. The Soledade-Passa-Tres line joins the Central Railway at the station of Barra de Pirahy (284 km. 465), after crossing the Serra da Mantiqueira and attaining an altitude of 1,271 metres (maximum gradient 0 m. 015 ; minimum radius of curvature 150 metres).

The Oeste de Minas Railway.—Part of the west of the State of Minas Geraes is served by the Oeste de Minas Railway, which belongs to the Federal Government and was commenced in 1880. This system connects with the Central Railway at the station of Sitio (altitude 1,040 metres) at a distance of 363 kil. 094 from Rio de Janeiro on the Linha do Centro.

The section, which begins at Sitio, terminates at the junction of the Paraopeba and Sao Francisco rivers ; it covers a distance of 601 km. 800. This system serves districts in which stock-raising and the cultivation of coffee, cereals, sugar-cane and cotton have attained a considerable development. The gauge is 0 metres 76 ; the maximum gradient is 0.022 metres and the minimum radius of curvature 72 metres. At kilometre 202.109, a branch line of 48 km. commences, and terminates at Ribeirao Vermelho, which is also the junction of two lines, one of which, 9 km. 311 in length (different gauges), connects at Lavras with the branch line, which, starting from the latter town, joins the Central Railway at Barra Mansa (Rio-Sao Paulo line), that is to say, after covering a distance of 285 km. 251. From Barra Mansa, a line of 62 km. 400 extends to Angra des Reis, a small harbour of the same name on the Atlantic.

The importance of the other line which starts from Ribeirao Vermelho is due to the fact that it connects the States of Minas Geraes and Goyaz. Its terminus, the town of Formiga (142 km. 100) is the railhead of the Goyaz Railway, of which we shall speak later. Formiga is also the railhead of a small branch line of 34 km. in length which terminates at Etapecerica.

We must further mention two small branch lines which start from Barra Mansa, one 51 km. 600 in length, terminating at the town of Cedre, and the other 62 km. 004 in length, terminating at the town of Capivary.

Finally, we must refer to the important branch line which connects the Sitio-Paraopeba system with the capital of the State. This branch line starts from Divinopolis (355 km. 170 from the station of Sitio) and terminates at Bello-Horizonto, after covering a distance of 155 km. 185f A small branch line leaves it at km. 77.466 and connects with the town o. Para (27 km. 601).

A small branch line also leaves the Sitio-Paraopeba line at km. 96.432 and connects Chagas Doria with Aguas-Santas.

We have thus seen how the capital is connected with an extremely rich district in the State of Minas Geraes.

The Leopoldina Railway Co. Ltd.—The north of this State is served by the "Leopoldina Railway Co. Ltd.," one of the branch lines of which starts from Porto Novo, which, as we have said above, is a junction on the Central Railway. This system, known under the name of Linha do Centro, covers a distance of 369 km. 603 (gauge, one metre). Its terminus—Saude— is situated on the river Doce. Several important towns of Minas Geraes are served by this system. A small branch line leaves it at km. 7.524 and connects it with another line, 178 km. 665 in length, starting from Nictheroy (capital of the State of Rio de Janeiro in the Bay of Rio) and terminating at Macuco on the river of the same name. There was much bold construction work involved in the building of this railway (gauge, one metre). The first part of the line, as far as Cachoeira, is across a marshy plain. At Cachoeira it begins climbing (maximum gradient 0 metres 083), reaching, the summit after covering a distance of 94 km. The line then follows the valley of the Bengala in a series of short curves (minimum radius of curvature 40 metres) as far as Novo Friburgo, a summer resort much frequented by the inhabitants of Rio.

This line is prolonged by a branch which leaves Cordeiro and reaches the Parahyba at Portellas.

Another system of equal importance starts from Porto das Caixas (on the Nictheroy-Macuco line) and terminates at Macahé (a small harbour situated at the mouth of the river of that name) covering thus a distance of 146 km. 494. There is a small line 34 km. 512 in length which connects Macahé with a very fertile zone, and terminates at the town of Glycerio. It may also be added that the river Macahé is navigable for a distance of 78 kilometres. Macahé is, therefore, an important junction of communications. The cultivation of sugar-cane, cereals and cotton is much developed in this district. Another system, starting from Macahé, connects it with the town of Campos, covering a distance of 96 kilometres 757 (gauge, one metre ; minimum radius of curvature 160 metres ; maximum gradient 0.015 metres). A branch line, 57 km. 440 in length, connects this system with the Mancol de Moraes district.

Campos is, after the capital, the most important commercial city in the State of Rio de Janeiro. It is situated on the right bank of the Parahyba river, which at this point is 300 metres broad. The town of Campos is the central point of an extremely prosperous agricultural region. A small line, known as "Campistao" (32 km. 320) connects Campos with Sao Joao de Barra, a small harbour situated at the mouth of the Parahyba river. Two small branch lines connect Campos with Altafona (42 km. 049) and Colomins (13 km. 730).

Finally, two important systems start from Campos, one of which extends northwards and connects the State of Espirito Santo with the capital, while the other follows a westerly direction and connects Campos directly with the State of Minas Geraes.

The system which serves the State of Espirito Santo is divided into four sections. The first, from Campos to Murundu, which is also a point of bifurcation, is 50 km. 458 in length ; the second (20 km. 626), from Murundu to Santo Eduardo on the Itabapoana; the third (93 km. 230), from Santo Eduardo to Itapemirim on the river of that name (State of Espirito Santo); the fourth (158 kil. 856), from Itapemirim to Victoria, capital of the State of Espirito Santo, and one of the best harbours in Brazil.

From Itapemirim (a district which is chiefly agricultural) a branch line of 146 km. 200 in length extends at present as far as Espera Feliz and connects with a small line which terminates at Castello at a distance of 21 km. 400 from the junction (Coutinho).

We have already said that the station of Murundu is a point of bifurcation. It is, in fact, the railhead of a lineof 108 km. 746, which terminates at the town of Purciuncula, in the north of the State of Rio. A small branch line (33 km. 536) connects this line, at the station of Patrocinio, with another line, of which we shall speak later. Let us now consider the other system which starts from Campos in the direction of the State of Minas Geraes. This line, which follows the course of the Parahyba, connects Campos with the town of Sao Fidelis, situated on the right bank of the Parahyba, and terminates at Miracema. The gauge is one metre ; the maximum gradient is 0 metre 025, and the minimum radius of curvature 101 metres. A small branch line (17 km. 738) connects this line with the Recreio-Manhuassu system. The station of Recreio is situated at km. 67.029 of the Linha do Centro which we have described above. This system (Recreio-Manhuassu) is 266 kil. 540 in length ; mention should also be made of a small branch line (17 km. 638) which connects it with the town of Sao Paulo (State of Minas Geraes).

At the beginning of this description of the Brazilian Railways we stated that our oldest line (1852) started from Maua, a small harbour in the Bay of Rio de Janeiro. This railway was taken over by "The Leopoldina Railway Co. Ltd." and is part of a section which terminates at the town of Sao José de Rio Preto (State of Rio de Janeiro), after covering a distance of 91 km. 909. This railway serves the town of Petropolis, a summer resort much frequented by the inhabitants of Rio. The district which it traverses is chiefly agricultural and industrial.

A branch line of 35 km. 861 connects this system with the towns of Entre Rios (Central Railway) and Piracema, which is a railhead for another line of 156 km. 684. The latter connects with the Linha do Centro. There are three branch lines : the first, of 25 km. 998 in length, terminates at the town of Mar de Hespanha ; the second, of 67 km. 841, also connects this system with the Central Railway at the station of Juiz de Fora ; the third, of 27 km. 469, terminates at the town of Pomba.

We must also mention the following branch lines : one of 90 km. 037 which starts from Ponte Nova on the Linha do Centro and terminates at Sao Sebastao de Matipo ; another of 36 km. 100, which connects Cataguazes (Linha do Centro—kilometre 103.362) with the town of Mirahy ; another, which may be termed a sub-branch, connects the Cataguazes-Mirahy Line with the town of Joao Pinheiro. Finally there is a small line of 12 km. 319

which connects the Linha do Centro with the town of Leopoldina, a very important centre of coffee planting. Finally the Maua-Sao de Rio Preto line is connected with Rio de Janeiro by a line which starts from Praia Formoza, serves the suburbs of Rio and connects with the above system at Entroncamente after covering a distance of 46 km. 138.

This completes the account of lines owned by the "Leopoldina Railway Co. Ltd.".

This large system, the second largest in Brazil, serves a zone of great economic importance and connects the capital of the country with the principal towns of the States of Rio and Espirito Santo and with one of the most productive districts of the State of Minas Geraes.

We have already referred to the town of Formiga, the terminus of one of the lines of the Western Railway of Minas Geraes. There is also another line which starts from Formiga and which will be of considerable importance when it has reached the points at which it is aiming, namely, the capital of the State of Goyaz and the Upper Araguaya, one of the large tributaries of the Amazon. There are also several branch lines extending towards the Upper Tocantins, another tributary of the Amazon, and towards the Parahyba, the principal tributary of the Upper Paraguay. This line will thus connect the basins of the Amazon and the Paraguay ; but this extensive and interesting plan can only be gradually carried into execution. At present a branch line is in course of construction which will connect the southern districts of Minas Geraes and Goyaz with the lines which already exist, in order to connect them with the two large harbours of Rio de Janeiro and Santos. The line already laid is composed of two sections which will connect at Catalao (State of Goyaz). One of these sections starts from Formiga and terminates at Patrocinio (Minas Geraes) covering a distance of 356 km. 270 (gauge 1 metre) ; the other starts from Araquay (Minas Geraes) and terminates at Roncader (State of Goyaz), covering a distance of 211 km. 220. This line is connected with Catalao by a branch line of 28 km. 241, starting from Goyandira (km. 92.485). It should be remarked that the construction of this railway was only undertaken in 1908. It passes through an exceedingly mountainous and difficult district. In spite of such difficulties, 173 km. 261 of line was laid down between December 31st, 1913 and December 31st, 1919.

Local Lines.—Before commencing a description of the systems which serve the Northern and Southern States, we must mention certain local lines in the Federal district and in the State of Rio de Janeiro. At the capital itself there is an electric railway for the ascent of the Corcovado (altitude, about 700 metres), from which a magnificent panorama is to be seen.

The Rio do Outo Railway (59 km. 900) serves the more distant suburbs of the capital. It has five small branch lines.

The Marica Railway (State of Rio de Janeiro) starts from Nictheroy. It covers a distance of 65 km. 108, and serves certain towns and villages of the State of Rio.

The Therezopolis Railway (gauge 1 metre) connects the town of Therezopolis with Piedade, on the Bay of Rio (distance 33 km. 200).

The Rezande-Bocaina Railway starts from Suruby (State of Rio) and terminates at Sao Jose de Barreiros, covering a distance of 38 km. 810.

Finally we should mention two local lines in the State of Minas Geraes, one of 51 km. 995, connecting Sao Jose de Paraizo with the Rede-Sul Mineira line; the other, which is driven by electric power (gauge 0.66 metres), connecting the gold mines of "Merro Velho" with the Central Railway (distance 8 kilometres).

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Let us now glance briefly at the different lines which serve the State of Sao Paulo. The economic importance of this State as the greatest producer of coffee is well-known. Its port of export is Santos, and it is to this port that all the coffee and the numerous other products of the State of Sao Paulo, as well as a large part of those of Parana and Southern Minas Geraes, are sent. Santos is connected with the interior of the State by "The Sao Paulo Railway Co. Ltd.)

Sao Paulo Railway Co. Ltd.—This line is 139 km. in length. It connects the port of Santos with the capital of the State and with the town of Jundiahy, where it terminates. It climbs the Sierra do Mar by four inclined planes and thus reaches an altitude of 778 metres in an ascent of 10 km. 598 (maximum gradient 0,111 metres). The crossing of the Sierra do Mar involved considerable and costly engineering. The trains there are worked by four sections of steel cable, for which the motive power is supplied by a stationary engine at each stage of the ascent. The line is double. The gauge is 1 m. 60. The maximum radius of curvature is 241 metres; the maximum gradient, with the exception of those on the line over the Sierra do Mar, is 0.025 m. There are two branch lines: one from Campo Limpo to Vargem (length 76 km. 910); the other of 30 km. 784 (Ramal de Piracaia).

Jundiahy is an extremely important junction; another line of considerable importance—the "Companhia Paulista"— starts from this point. This latter does not cross country of a difficult nature and has not necessitated any very important engineering works. It serves a very fertile and highly populated district, and is chiefly used for the conveyance of coffee. It is composed of several sections, which are as follows:

Jundiahy-Descalvado, 223 kil. 773 (gauge 1 m. 60); on this section there are three branch lines; Cordeiro to Rio Clara, 133 km. 687; Laranja Asoda to Santa Vorodiana, 40 km. 374; Porto Ferreira to Moema, 36 km. 568; Descalvado to Aurora, 13 km. 840; a line of 331 km. 600 (gauge 1 metre) starts from Rio Claro and terminates at Barretos. A branch line of 144 km. 324 connects the town of Jahu with this line (junction at Viscondo de Rio Claro, 54 km. 662).

Two branch lines start from Sao Carlos de Pinhal on the Rio Claro-Barretos line: one of 62 km. 976 (terminus Santa Eudoxia); the other of 120 km. 552 (terminus Piratininga). The town of Bauru is connected with this branch line by a line of 38 km. 178. There is also a branch line connecting the town of Pontal with the Rio Claro-Barretos line; it commences at

Rincao (159 km. 204) and follows the course of the Mogy-Guassu as far as the small town of Pontal.

This list shows the large extent of the zone served by the Paulista System.

Mogyana Railway.—Another system, the Mogyana Railway, of considerable economic importance, built, worked and administered by a Brazilian company with a Brazilian staff, starts from Campinas (which is also included in the Paulista system and serves the north of Sao Paulo and part of the south-west of Minas Geraes. It extends as far as the frontier of Goyaz and connects by branch lines with the Southern railways of Minas Geraes. The whole district traversed by this railway is extremely fertile. In the State of Sao Paulo it serves the richest coffee-planting districts. Its construction was commenced in 1873 and the total length of line is at present 1,688 km. 717. The main line connects the town of Campinas with Araguary, in the State of Minas Geraes, covering a distance of 788 km. 821. This line passes through the town of Ribeirao Preto, the principal coffee-planting centre in the State of Sao Paulo. It also serves the town of Uberaba, a centre for stock-raising, grain-growing and cotton and sugar cane plantation and an important trading station for the South of Goyaz and the State of Matto Grosso.

This line has nine branches : Juaguary–Monte–Alegre, 49 km ; Mogy–Mirim–Sapucahy, 50 km. ; Mogy–Guassu–Espirito–Santo de Prinhal, 37 km. ; Cascavel–Caldas (thermal station), 203 km. 653 ; Lagoa to Vargem–Grande, 20 km. ; Santos–Dumont to Cajuru, 60 km. ; Cravinhos to Serrana, 28 km. 662 ; Burracao to Francisco Schmidt, 34 km. ; Entroncamento to Igarapava, 157 km. A branch 41 km. in length starts from Ampara on the Jaguary–Monte Alegre line and ends at Serra Negra. Another branch line of 32 km. starts from Monte Alegre and ends at Soccorre.

A branch line of 45 km. starts from Ribeirao de Valle on the Casa Brancha–Canoas line and ends at Guaxupe. As we have stated above, this is the junction of this railway with the Rêde Sul Mineira line.

A sub-branch of 16 km. starts from the station of "Bifucacao" on the branch line Gravinhos-Serrana.

Finally there is the Igarapava-Uberaba line (47 km. 765) which provides another connection between the principal town in the South of Minas Geraes and the Mogyana Company's system.

The Paulista and Mogyana Railways serve the centre and north-west of the State of Sao Paula. Let us now see how the south and east of this State are connected with the Sao Paula Railway, or in other words with the harbour of Santos.

Sorocabana Railway.—The capital of Sao Paulo is the railhead of another system which is also due to Brazilian enterprise : the "Sorocabana" Railway. The length of track on this system is at present 1,669 km. 815. It serves a large district comprising the whole of the south-west of Sao Paulo, rich in various products (coffee, cotton, oleaginous fruits, cereals, etc.). The main line, 438 km. 439 in length, connects Sao Paulo with Bauru

(gauge 1 m. maximum gradient 0. 025 m., minimum radius of curvature 120 m.). A line of 300 km. 259 starts from Mayrink (73 km. 273) and connects the main line with the town of Sao Peidro. A branch of 43 km. 100, starting from Taicy (150 km. 883), connects this line with the town of Jundiahy, whose importance has already been alluded to.

A branch line of 21 km. 545 starts from Boituva (on the line Sao Paulo-Bauru) and connects it with the town of Tatuhy, from which another line of 250 km. 007 in length extends as far as the town of Itarare.

Another branch line (8 km. 069) connects the town of Tiete with the main line at Cerquilho (117 km. 816).

There is also a branch line of 30 km. 072 which connects the main line with Porto Martins on the River Tiete.

From Capao Bomito (316 km. 402) starts a line which connects the main line with the River Paranapanema, a tributary of the Parana. 511 km. 279 of this line, which is still in construction, is already in use. A branch line of 25 km. 380, starting from Mandury (125 km.), connects this line with the town of Piraju on the Paranapanema.

The Mayrink–Sao Peidro line has a branch line of 24 km. 662 which connects it with Fort Joao Alfredo on the Piracicaba.

We have mentioned the different sections of the Socrocabana Railway. The reader will have observed the vast extent of the zone served by this railway. It should be added that the main line joins that of the north-western railway, and that by its branch line of Itarare this great system connects with the Sao Paulo-Rio Grande Railway, with which we shall deal later. It connects the basins of the Paranapanema, the Tiete and the Piracicaba, and by its junction with the Sao Paulo Railway Company, places all these districts in communication with the harbour of Santos.

Secondary Systems.—Let us now examine certain secondary systems which are operated by companies other than those to which we have referred. The Dourado Railway, of which Ribeirao Bonito is the starting point, has two sections: Ribeirao Bonito to Barity (83 km. 248), with a branch (26 km. 120) from Tobatinga to Irapolis (gauge 1 metre); and Ribeirao Bonito to Ibitinga (124 km.). The gauge of the latter is 0.60 metres, the maximum gradient 0.030, and the minimum radius of curvature 60 metres.

The Northern Sao Paulo Railway (gauge 1 metre, maximum gradient 0.020 m., minimum radius of curvature 120 metres) connects the town of Araquara with Sao Jose de Rio Preto, covering a distance of 228 km. 136; a branch (51 km.) connects it with the town of Tabatinga. It is in this way connected with the Dourado Railway system, and the system of the Paulista Company (at Araquera).

The Sao–Paulo–Minas Railway starts from Bento Quirino and terminates at Sao Sebastio de Paraizo, where it connects with the Rêde Sul Mineira Railway, which we have already mentioned.

The Sao Paulo–Goyaz Railway (gauge 1 metre) and two branch lines: Pansagem to Monte Azul (73 km. 313); Ibitiuva to Terra Nova (32 km.). The Ramal Ferreo Campineiro Railway connects the town of Cabras with Campinas (length of rail 41 km. 444, gauge 0 m. 60).

The Santos-Santo Antonio de Jucquia Railway, which connects these two towns, (length of line 159 km. 482, gauge 1 metre).

The Cantareira Tramway (gauge 0.60 m.), which serves the suburbs of Sao Paulo (length of main line 25 km., branch line 18 km.).

The electric tramway of Santo Amoro (gauge 1 m. 44, length of track 13 km. 160).

The Monte Alto Railway (gauge 1 metre, length of track 18 km.).

The Jaboticabal-Ibitiuva Railway (length of track 26 km., gauge 1 m.).

The Agricole Fazenda Dumont Railway, which connects the Fazenda Dumont with the town of Reibeirao Preto (length of track 24 km., gauge 0.60 m.).

The Perus-Pirapora Railway (length of track 16 km., gauge 0.60 metres).

The Campos-Jordao Railway, which connects Jaguaribe with Pindamonhangaba (length of track 45 km. 820).

The Itatibense Railway which connects the town of Loureiro with Itatiba (length of track 20 km., gauge 1 metre).

The Lorena-Piquete Railway (length of track 20 km.).

Finally the Punilense Railway (gauge 1 metre), starting from Campinas and terminating at Padua Salles (length of track 94 km. 263).

The above list shows the admirable system which serves the State of Sao Paulo. Its territory (290,876 sq. km.) is covered by a net-work of intersecting lines, connecting with one another, and forming a fairly complete system of communication between the sea-coast and the interior of the country.

The total length of track is 6,615 km. 454, that is to say, this system represents 23.5 % of the total length of track in operation on Brazilian territory.

Railway of North-West Brazil.—We have already stated that the town of Bauru is the junction of the Sorocabana Railway with the railway of North-West Brazil (gauge 1 metre). This railway, which, although constructed quite recently, is already 1,273 km. 480 in length, starts from Bauru. After passing through the rich western districts of the state of Sao Paulo, it enters the State of Matto Grosso, which it directly connects with the Paulista system, and, through the latter, with the main coast centres.

The section in operation connects Bauru with Porto Esperança, on the left bank of the Paraguay, at a distance of 90 kilometres from Corumba, which is also on the left bank of the Paraguay, and is connected with Porto Esperança by a steamship line. Corumba is, after the capital, the most important town in the State of Matto Grosso. It is the principal port and trading centre. It should be added that this railway passes through Itapura, the centre of an extensive system of waterways formed by the Parano and its tributaries. It seems unnecessary to make any further comment on the economic and strategic importance of this railway, which connects several of the richest districts of our vast country.

Sao Paulo-Rio Grande Railway.—As we have already indicated, the town of Itarare is the railhead of a most important system which

connects four states of the Federation — the Sao Paulo-Rio Grande Railway. This line crosses the state of Parana, the state of Santa Catharina, and terminates in the state of Rio Grande do Sul, after covering a distance of 883 km. 206 (guage 1 metre, minimum radius of curvature 101 metres, maximum gradient 0 m. 025). At Ponta Grossa, in the state of Parana — that is to say, after covering a distance of 251 km. 901, this main line joins the Parana Railway. The state of Sao Paulo is thus placed in direct communication with the capital of Parana, Curityba. This line, connecting Ponta Grossa with Curityba, is 190 km. 989 in length. It is simply an extension of the line which connects the capital of the State with the harbour of Paranagua. Ponta Grossa is a most important junction. This town (altitude 941 metres) is situated in an extremely fertile region suitable for all kinds of cultivation and including vast pasture lands for stock raising. It is the trading centre for the whole of the west and south districts of the State of Parana.

Parana Railway.—We have stated that Curityba is connected with the sea by the Parana Railway. This line is 110 km. 360 in length. It crosses the Sierra do Mar, thanks to remarkable engineering works (maximum gradient 0.03, minimum radius of curvature 90 metres, guage 1 metre). The audacity and originality of its construction have made it one of the most celebrated railways in South America. Among the feats of engineering which it presents, we may mention its numerous tunnels, a large viaduct constructed along the side of a mountain and following its irregularities, and a bridge on iron pillars 50 metres in height connecting two mountains over an abyss of rocks and bushes.

This line is connected with the town of Antonina by a branch line of 16 km. 995, starting from the station of Morretes.

Two other branch lines may be mentioned: one of 88 km. 915, which connects the Ponta Grossa-Curityba line with the town of Rio Negro on the river of that name; the other of 9 kilometres, terminating at Porto Amazonas, which is situated on the river Iguassu.

Another line starting from the capital of Parana connects it with the town of Rio Branco, a distance of 47 km. 397 (gauge 1 metre).

Let us now return to the Sao Paulo-Rio Grande Railway. This has two branch lines in the state of Parana; one connects the main line with the town of Sao José (junction at Jaraguanyva), covering a distance of 52 km. 960; the other, of 44 km. 980, terminates at Nova Restinga.

The main line leaves the state of Parana at Uniao da Victoria, a small town situated on the left bank of the Iguassu river, which is crossed by a viaduct of nearly 500 metres in length. The line crosses the state of Santa Catharina, a distance of 351 km. 303, and ends, as we have already stated, in the state of Rio Grande do Sul on the banks of the Uruguay River.

The state of Santa Catharina has no very extensive railway system. In addition to the 351 kilometres of the Sao Paulo-Rio Grande Railway to which we have referred, there is a line of 326 km. 288 in length belonging to the same company, but not as yet connected with the main line, a railway known as "Thereza Christina" (118 km. 096), and the Santa

Catharina Railway, which is still under construction, but of which 69 km 700 is in operation.

The Sao Paulo-Rio Grande section connects the harbour of San Francisco (the most important in the state) with several centres of production and terminates at Canoinhas; the Thereza Christina Railway (guage 1 metre, maximum gradient 0.020, minimum radius of curvature 100) also starts from the sea-coast, and terminates at Lauro Muller. A short branch (5 km. 340) connects the latter railways with the harbour of Laguna. The Santa Catharina line (gauge 1 metre) starts from Blumenau and extends as far as the town of Hansas, where it connects with the San Francisco-Canoinhas line. We have already said that the Sao Paulo-Rio Grande line connects with the Rio Grande do Sul Railway on the banks of the river Uruguay. Let us now examine the railway system of this state situated in the southernmost part of Brazil.

Rio Grande do Sul Railway.—The capital of the State, Porto Alegre, a town of about 120,000 inhabitants, situated on the left bank of the Guahyba river, is the railhead of a system the main line of which reaches the town of Uruguayana on the frontier of the Argentine Republic, a distance of 762 km. 660 (gauge 1 metre, maximum gradient 0 m. 018, minimum radius of curvature 124 metres.) A branch line of 2 km. 108 connects it with the River Taquary. Another branch line of 53 km. 115 connects it with the town of Taquara. Another line of 115 km. 800 connects it with the town of Caxias. A little further on there is another branch (31 km. 099) which connects it with the town of Santa Cruz. A line of 534 km. 533 connects it with the Sao Paulo-Rio Grande Railway. This latter starts from Santa Maria and passes through the towns of Cruz Alta and Passo Fundo. A branch line, 78 km. 500 of which is already in use, is in construction. It starts from Cruz Alta and will terminate at Santo Angelo. A line of 489 km. 377, starting from Cacequi (on the line Porto Alegre Uruguayana) connects it with the harbour of Rio Grande, after passing through the town of Sao Gabriel, Bagé and Pelotas. A branch line of 16 km. 566 connects this line with the Atlantic coast, and terminates at Sequeira. The Porto Alegre Uruguayana line also has a branch line connecting it with the town of Sant-Anna do Livramento, and extends as far as the frontier of the Republic of Uruguay, covering a distance of 156 km. 307. It thus connects the Brazilian railways with those of Uruguay.

The town of Uruguayana, on the Uruguay, which is the terminus of the main line crossing the State from East to West, is also the railhead for two lines, one of 75 km. 264, terminating at Guarahim on the frontier of Uruguay · the other of 299 km. 304, ter minating at Sao Borja.

We should also mention a line (80 km. 911) connecting the town of Sao Pedro with the banks of the river Jaguary, and finally, the small system which serves the neighbourhood of Pelotas.

Such is the magnificent system which serves the great southern State of Brazil. A glance at the map will show the reader the excellent distribution of the railways of this state. It should be added that they are as important strategically as economically.

The reader will doubtless have remarked the connections existing between all the large systems which we have described. There is, in fact, a whole system of railways connecting the basins of the Sao Francisco, the Iguassu, the Uruguay and the Paraguay. In the same way the principal coast centres, from Victoria, in the State of Espirito Santo, to Rio Grande, are all connected with each other, and enjoy an ingenious system of communications with the most important inland towns of seven great States.

Let us now examine the systems which serve the northern part of the country.

Railways of Espirito Santo.—We have shown above how the Leopoldina Railway connects Victoria, the capital of Espirito Santo, with Rio de Janeiro. Victoria is the railhead of a line which will terminate at Diamantina, in the State of Minas Geraes. This line starts not from Victoria itself but from a small place opposite Victoria, known as Porto Velho. Its total extent is 390 km. 678 206 km. 460 in the territory of Espirito Santo, and the remainder in Minas Geraes (gauge 1 metre, minimum radius of curvature 100 metres, maximum gradient 0 m. 025). A section of this line, 147 km. 516 in length, connects Diamantina with the Central Railway of Brazil (at Curralinho). When the main line has reached its terminus, namely Diamantina, this railway will provide the north and centre of Minas Geraes with a new outlet to the Atlantic. It will serve an extremely rich mining district.

No railway connection exists between the State of Espirito Santo and that of Bahia, its northern neighbour. There is, therefore. a serious gap in the Brazilian railway system at this point.

Bahia Railways.—The state of Bahia (426,427 sq. K.) possesses a fairly complete railway system ; there are 1,728 K. 103 of line in use. The longest on this system is that which connects the capital with the town of Joazeiro on the Sao Francisco river, a distance of 575 K. 440 (gauge 1 metre, maximum gradient 0 m. 0125 ; minimum radius of curvature 300 m.). It should be mentioned that Joazeiro is an important junction : it is the port of departure for boats navigating the Sao Francisco River as far as Pirapora (Minas Geraes, terminus of the central railway), a distance of 1,367 K. The main line to which we have referred has a branch (544 K. in length (gauge 1 m., maximum gradient 0 m. 0166, minimum radius of curvature 120 m.) which passes through Aracaju, the capital of Sergipe, and terminates at Propria in the same state. A sub-branch of 11 k. 890 connects this branch with the town of Capella (Sergipe). We must also mention a branch line which is under construction and which will connect the town of Bomfim (on the Bahia-Joazeiro line) with Sitio Novo. Including a sub-branch of 9 K. 905, which connects it with the town of Campo Formozo, 106 K. 800 of this branch is already in operation.

Sao Felix, which is of a certain commercial importance, is the railhead of another system (Central Railway of Bahia) which will also end at the river Sao Francisco. It already has 254 K. 600 of track in operation, and its present terminus is at Bandeira de Mello. It is connected with the town

of Feira de Santa Anna by a branch line (47 K. 943 in length, gauge 1 metre, maximum gradient 0 m. 033, minimum radius of curvature 120 m.). It will be connected by another branch line, not yet built, with the town of Theophile Ottoni in the north of the State of Minas Geraes. A very small section of this branch line (13 K. 400) is constructed and in use.

Another line, which is entirely unconnected with the two to which we have referred, connects the small harbour of Nazareth with the town of Toca da Onça, covering a distance of 194 K. 929 (gauge 1 m. maximum gradient 0 m. 025 ; minimum radius of curvature 120 m.). A branch line of 26 k. 755 connects it with the town of Armahoza. This line will be extended as far as the town of Itabuna, where it will connect with the Ilheus-Conquista Railway. An extremely fertile district of the state of Bahia will thus be placed in communication with the harbours of Nazareth and Ilheus. A line of 82 K. 750 (gauge 1 metre) starts from the latter harbour.

The town of Santa Amaro is the railhead of a line of 88 K. 350 which connects it with the town of Bom Jardim, and with the main line Bahia-Joazeiro.

Another line connects the north of Minas Geraes with the port of Caravellas in the state of Bahia. This is the Bahia-Minas Railway, which starts from Caravellas and ends at Theophile Ottoni (Minas Geraes), a distance of 376 K. 270 (gauge 1 m., maximum gradient 0 m. 025, minimum radius of curvature 109 metres.).

Finally there is "The Centro-Oste Railway" (length 51 K. 863, gauge 1 metre).

Bahia also possesses the following local lines :—

Usina	S. Bento	gauge	1 m.		14 km.	Connect with the S. Amaro line.
»	Terra Nova	»	1 »		12 »	
»	Alliança	»	1 »		14 »	
»	Capimirim	»	1 »		1 »	
»	Malemba	»	1 »		6 »	
»	S. Carlos	»	1 »		8 »	
»	Colonia	»	0 »	65	13 »	
»	S. Joao	»	0 »	75	4 »	
»	Pitanga	»	1 »		6 »	Connects with the Bahia-Sao Francisco line.
					78 km.	

The above description serves to show that the state of Bahia already has a group of lines which will form a system of great economic importance when they are connected up.

Alagoas Railways.—We have seen how the State of Bahia is connected with that of Sergipe. There is no railway connection between Sergipe and its northern neighbour the State of Alagoas. The latter possesses a system 326 km. 801 in length. A line operated by " The Great Western Railway Co. Ltd. of Brazil " starts from Jaragua, a small harbour

near Maceio, the capital of the State, and connects Alagoas with the State of Pernambuco (gauge 1 m., maximum gradient 0 m. 020, minimum radius of curvature 100 metres). The main line covers a distance of 119 kilom. 358 in the territory of Alagoas and has a branch line of 106 kilom. 069 which connects it with the town of Vicosa. A line entirely unconnected with the above runs along the left bank of the Sao Francisco river and transports goods in river transit past the cataracts of Paule Alfonso (gauge 1 m., maximum gradient 0 m. 030 ; minimum radius of curvature 82 m.). The length of this line is 115 kilom. 136-101 kilom. 374 in the State of Alagoas and 13 kilom. 752 in Pernambuco. Its railhead and terminus are the town of Piranhas (Alagoas) and Jatoba (Pernambuco) respectively.

The system, whose main line starts from Jaragua, also serves three other states : Pernambuco, Parahyba and Rio Grande do Norte. It thus provides an extremely important means of communication between four units of the Federation and serves one of the most productive districts of north-east Brazil.

Pernambuco Railways.—As we have stated above, the state of Alagoas is connected with the neighbouring state of Pernambuco by the main line of " The Great Western Railway of Brazil ". This line covers a distance of 119 kilom. 358 before reaching the territory of Pernambuco. From Glycerio, that is to say at a distance of 16 kilom. 130 from the frontier, a branch line of 56 kilom. 301 runs to Garanhuns. This is eventually to be extended as far as the town of Bom Conselho, on the river Papacara. The main line reaches Recife after covering a distance of 230 kilom. 862. Two branch lines commence at a distance of 86 kilom. 870 from Recife : one, 28 kilom. 663 in length, runs to Cortez ; the other, 55 kilom. 282, to Barreiros. Recife, which is a harbour of great economic importance, is the railhead of two other particularly important main lines. One of these extends into the interior of the State (former Central Railway of Pernambuco) for a distance of 269 kilom. 268 (present terminus Rio France) but its construction is not yet entirely completed. Its total length will be 455 kilom. 888 and it will end at Flores. It serves one of the richest districts in Pernambuco (cotton, sugar-cane plantations, etc.). The second connects Recife with the state of Parahyba de Norte (area 74,731 sq. kilom.). Its length of track in the state of Pernambuco is 129 kilom. 101. There is a branch line of 23 kilom. which connects it with the town of Limoeire.

Railways of Parahyba de Norte.—The frontier of the State of Parahyba de Norte is crossed at the station Rosa e Silva. A branch line of 81 kilom. 269, commencing at a distance of 14 kilom. 700 from the frontier, connects the main line with the town of Campina Grande. At a distance of 51 kilom. 795 from the frontier the line bifurcates. The main line continues northwards, while a branch of 50 kilom. 198 connects it with the towns of Parahyba, the capital of the State, and Cabedello an Atlantic port. A branch line of 23 kilom. 155 connects the town of Alagoa Grande with the main line (junction at Mulungu at kilom. 225,204). Finally, a branch (in the state of Parahyba) connects this line with Borborema, a distance of 24 kilom. 343

and, after covering a distance of 122 km. 200, terminates at the town of Natal, the principal harbour and capital of the state of Rio Grande de Norte (area 57,485 sq. km.). Natal is also railhead of the Central Railway of Rio Grande, which serves the interior of the State, covering a distance of 147 km. 358 (gauge 1 m.), and terminates at Lages.

Finally there is the Mossoro Railway, which connects Mossoro with Porto France, a distance of 37 km. 960 (gauge 1 metre).

The above figures show the extent of the system operated by the Western Brazil Railway Co. (1,475 km. 962). This system serves four North Brazilian States, one of which—Pernambuco—is destined to become one of the most important railway centres in the country.

Ceara Railways.—The State of Ceara (area 104,250 sq. km.), which borders on Rio Grande de Norte, is not yet connected with the latter by rail. Ceara has, however, a railway system of 891 km. 256. The town of Fortaleza (about 80,000 inhabitants), the capital and principal harbour of the state, is the railhead of the most important section : the Baturité Railway (guage 1 metre, maximum gradient 0 m. 020, minimum radius of curvature 130 metres). This railway connects the capital with several towns in the interior. It terminates in the district of Iguatu, after covering a distance of 413 km. 482, and has a branch line of 7 km. 246 which connects it with the town of Laranguape. Another branch line is in course of construction ; 19 km. 6 have already been completed. It will end at the town of Itapipoca, which is 154 km. from Fortaleza.

The other section is formed by the Sobral Railway (guage 1 metre, maximum gradient 0 m. 018, minimum radius of curvature 181 metres), which connects the harbour of Camocim (north of the State) with the town of Cratheus, and covers a distance of 373 km. 493. This line is being extended towards Therezina, the capital of the State of Piauhy. These two lines are at present unconnected with each another, but there are already plans for a line to connect them. The construction of two other sections which will connect these systems with the States of Pernambuco and Parahyba de Norte is also under consideration.

Piauhy.—The State of Piauhy (301,797 sq. km.) has at present no railways at all. Several plans have already been approved. We have stated that the Sobral will extend to Therezina, and it may be added that plans have recently been approved for a railway from Petrolina (in the state of Pernambuco, opposite Joazeiro on the river Sao Francisco) to Therezina, which will connect the capital of the state of Piauhy with the Bahia railway system, a distance of 436 kilometres.

Maranhao Railways.—The State of Maranhao (area 459,884 sq. km.) has a railway system covering 178 kilometres. There are two lines, one of which is still in construction, although 106 kilom. is already in use ; this will connect the capital Sao Luiz with Caxias. It will join on to the line from Caxias to Flores (formerly Cajazeiros) situated on the left bank of the Parahyba river, opposite Therezina, the capital of Piauhy (guage

1 metre, maximum gradient 0 m. 030, minimum radius of curvature 150 metres).

Para Railways.—The State of Para (area 1,149,712 sq. km.) is not connected with the State of Maranhao by rail. It is, however, served by two systems : one of 315 km. 752 — the Bragança Railway ; the other of 82 km. — the Tocantins Railway. The Bragança line connects the town of Belem, the capital of the State[1], with the harbour of Bragança, and passes through a very fertile region. It is destined eventually to connect the State of Para with Maranhao (guage 1 metre, maximum gradient 0 m. 020, minimum radius of curvature 250 metres). This line possesses four branch lines, namely : that which connects it with Pinheiro (27 km. 544) ; the Benjamin Constant branch (17 km.) ; the Bemfica branch (9 km.) ; Igarapé-Assu to Prata branch (21 km.).

The Tocantins line (guage 1 metre) which is still under construction, is to connect the navigable sections of the river Tocantins and the river Araguaya[2]; 82 km. of line are already in operation.

Amazonas Railways.—Amazonas, the northernmost state of Brazil, possesses one line : the Madeira-Mamoré Railway (guage 1 metre, maximum gradient 0 m. 010, minimum radius of curvature 190 metres), which starts from Porto Velho on the right bank of the river Madeira, in the State of Amazonas, and reaches the Mamoré river at Guajara-Mirim, in the State of Matto Grosso, a distance of 363 km. 400.

This railway establishes direct communication between the north of Matto Grosso, Bolivia and the basin of the Amazon. It connects the navigable portions of the Mamoré with the lower Madeira.

* * *

Such, in their essential outlines, are the various railway systems of Brazil. We have confined ourselves to a very brief summary. It is, however, easy to understand the work involved in the construction of nearly 30,000 kilometres of railway in a country where rails must be imported, where rolling-stock is for the most part bought from foreign countries, where labour is short and consequently at a premium, where natural obstacles of all kinds exist, and where the centres of population are, in general, at considerable distances from one another, as may be seen from a comparison of our territory and our population, the former being almost as large as Europe, and the latter numbering scarcely 30 millions.

The brief summary given shows that the principal lines of Minas Geraes, Rio de Janeiro, Sao Paulo, Parana, and Rio Grande do Sul are all connected, thus forming, with the lines of Espirito Santo and those of Matto Grosso, a fairly complete railway system. This system connects nine units of the Brazilian Federation. A second important system serves

[1] See description of this harbour (Para).
[2] See chapter on fluvial navigation.

two states : Bahia and Sergipe, and is itself connected with the large system just mentioned by the river Sao Francisco. A third system, remarkable for its length of track and economic importance, connects the states of Alagoas, Pernambuco, Parabyha and Rio Grande do Norte. Two lines which are not as yet, but which soon will be connected, form the most important railways of the State of Ceara. Another line which is also isolated, and as yet incomplete, serves part of the State of Maranhao. In the extreme north of the country there are three lines entirely unconnected with each other. For the most part these lines connect distant zones which are partly served by navigable waterways. The basins of some of our principal rivers are thus connected with one another. We have alluded to the constructions which are projected, and it is easy to form an idea of the magnificent system of communications which Brazil will possess when our railways and navigable waterways are all connected up.

It cannot be denied that technical conditions differ on the various Brazilian railways. In particular the difference of guages will have been noticed. We may state, however, that the differences are being eradicated. The guage is the same (1 metre) on 89.89 % of our railways. The guage of 1 m. 60 is adopted on 5.74 % of our railways. Other guages — that is to say, 1 m. 44, 1 m. 33, 0 m. 76, 0 m. 66, or 0 m. 60--only exist on 4.30% of the lines in use.

The following tables will serve to complete the above information.

I. *Railways of the United States of Brazil.*

Length of Lines in Operation.

			Kilometres.
1.	Federal.	Madeira Mamoré	364,260
2.	»	Tocantins	82,000
3.	»	Bragança	315,752
4.	»	S. Luis to Caxias	100,000
5.	»	Caxias to Cajazeiras	78,000
6.	Rêde de Viaçao Cearenso		891,256
7.	Federal.	Central de Rio Grande de Norte	147,358
8.	»	Mossoro	37,690
9.	Great Western Railway of Brazil		1,617,017
10.	Federal.	Recife to Deboribo	9,335
11.	Rêde de Viaçao Bahiana		1,933,572
12.	Federal.	Nazareth e ramal de Amargoza	221,684
13.	»	Santo Amaro	88,350
14.	»	Ilheos to Conquista	82,750
15.	»	Victoria to Minas	590,678
16.	»	de Corcovado	3,824

			Kilometres.
17.	Federal.	Therezopolis	33,820
18.	»	Marica	130,400
19.	Leopoldina Railway		2,945,825
20.	Federal.	Rezende to Bocaina	38,810
21.	»	Central of Brazil	2,438,518
22.	»	Rio de Ouro	127,676
23.	»	Oeste de Minas	1,564,087
24.	Rêde Sul Minera		1,373,689
25.	Federal.	Lorena to Itajuba	20,000
26.	»	Morro Velho	8,000
27.	»	Goyaz	590,731
28.	»	Mogyana	1,688,717
29.	Sao Paulo Railway		247,312
30.	Federal.	Paulista	1,245,055
31.	»	Sorocabana	1,669,815
32.	»	Bauru to Porto Esperança	1,273,480
33.	»	Dourado	273,368
34.	»	Sao Paulo to Goyaz	145,163
35.	»	Funilanse (Ad. Estadual)	94,263
36.	»	Sao Paulo to Minas	136,600
37.	»	Itatibense	20,097
38.	»	Norte de Sao Paulo (Araraquara)	279,136
39.	»	Santos to Juquia	159,482
40.	Ramal Ferreo Campinero		41,444
41.	Tramway of Cantareina (State Administration)		43,000
42.	Tramway of Santo Amare		13,160
43.	Federal.	Campos de Jordao	45,820
44.	»	Monte Alto	18,000
45.	»	Jaboticabal	26,000
46.	»	Perus to Pirapora	16,000
47.	»	Con Agricola Fazenda Dumont	24,000
48.	»	Sao Paulo-Rio Grande	1,896,642
49.	»	Norte de Parana	43,397
50.	»	Thereza Christina	118,096
51.	»	Santa Catharina	69,700
52.	Rêde Viaçao Ferreau de Rio Grande do Sul		2,252,996
53.	Brazil Great Southern Railway		299,467
54.	Federal.	Cruz Alta to Porta de Lucona	78,500
55.	»	Porto Alegre to Tristeza	11,980
56.	»	Carles Barbeza to Bento Gonçalves	22,000
57.	»	Taquara ao Canella	40,000
			28,127,712

II. *Railways of the United States of Brazil.*

Length of Lines in use in each State.

State.	Kilometres
Amazonas	8,281
Para	397,752
Maranhao	178,000
Ceara	891,256
Rio Grande de Norte	323,329
Parahyba de Norte	328,822
Pernambuco	832,448
Alagoas	326,801
Sergipe	298,923
Bahia	1,728,103
Espirito Santo	609,376
Districto Federal	258,329
Rio de Janeiro	2,535,839
Sao Paulo	6,613,454
Parana	1,110,267
Santa Catharina	1,017,568
Rio Grande do Sul	2,704,943
Mato Grosso	1,167,035
Goyaz	181,779
	28,127,712

III. *Railways of the United States of Brazil.*

Length of lines of each gauge in use.

Gauge	Kilometres
1.60	1,615,661
1.44	13,160
1.33	9,335
1.00	25,104,821
0.76	723,417
0.66	8,000
0.60	574,976
Mixed	78,342
	28,127,712

II.

WATERWAY AND MARITIME NAVIGATION.

In Brazil, every kind of navigation is in practice. There is no branch of the science which will not have to be considered in a study of Brazilian navigation.

Considered geographically, Brazil's navigation must be divided into three classes: inland navigation, coastal navigation, and ocean-going navigation.

From a commercial point of view, the divisions are *(a)* coasting-trade, and *(b)* international navigation. "Coasting-trade" here includes also navigation on rivers, lakes and lagoons. The following table shows the various classes of navigation by which Brazil is served.

The coasting traffic carries national or nationalised products between the Brazilian ports. It is therefore an industry entirely given over to Brazil's home trade. Under Article 13 of the Brazilian Constitution it has been reserved entirely for the Brazilian flag, but vessels flying this flag are subject to the same customs regime as ships of other nationalities when they carry goods subject to import duties from foreign countries to Brazilian ports or take on board in the national ports goods in transit or intended to be re-exported.

We have both long-distance and a local coasting trade. The long-distance coasting trade is that carried on between at least two States of the Union. By "local coasting trade" is meant that carried on between ports of the same State on the coast or on inland waterways, and also, by an extension, that carried on by vessels of shallow draught between ports of two neighbouring States, when these ports are situated near the common frontier. It can be seen, therefore, that the capacity of the boats is not sufficient to characterise the nature of the coasting trade, for vessels with the same tonnage are employed both in the local and in the long-distance trade. Naturally, however, the shallow-draught boats are more suitable for the requirements of the local trade and are more often employed in it.

It is clear from the above that in considering Brazilian shipping it must be divided into three parts: inland navigation, coastal navigation and ocean-going navigation. This latter is much less developed than the first two. In order to have some idea of the two former, a number of complicated factors must be borne in mind; to understand the latter it is sufficient to enumerate the services maintained by ships employed on ocean voyages.

For a full account of Brazil's inland navigation and coasting traffic, it would be necessary to give an amount of technical and geographical information which would exceed the limits permitted to us in this report. It would be necessary, in fact, to describe not only the innumerable variety

Navigation in Brazil.

- Considered geographically
  - Home navigation
    - Inland
      - Rivers, lakes and lagoons
    - Coastwise
  - Navigation between Brazil and other countries
    - Ocean-going
      - Trans-oceanic
      - Along the American coasts
    - River
- Considered commercially
  - Coasting trade
    - Long-distance coasting-trade
      - Maritime
      - River
      - Sea and river
    - Local coasting-trade
      - Maritime
      - River
      - Sea and river
  - International navigation
    - Ocean-going
      - National
      - Foreign
    - River

of vessels used on the rivers and lakes and along the coast of this immense country, but also the special conditions pertaining to each part of it, as well as to state the legislative provisions and administrative regulations referring to this vast subject. This would be impossible. We could not supply you with the mass of indispensable in formation, *e. g.*, on the law governing the coastal waters, rivers and lakes of Brazil ; the situation of all the sea and river ports and the numerous good anchoring grounds on the coast ; the influence of the tides on the coasting trade and the regular flooding of the rivers on river navigation ; the relation between the capacity of navigable waterways and the tonnage of vessels ; the innumerable peculiarities, in short, which characterise the coastal or inland navigation in each of the States of Brazil. Our sole task now is to furnish a summary as precise as possible, but inevitably incomplete.

A.—INLAND NAVIGATION.

Brazil's inland navigation presents two principal aspects, of which one is the complement of the other — navigation on rivers and navigation on lakes and lagoons. The large vessels used in the one are usually those employed in the other. River transport is carried on by various means, from the primitive raft constructed from the transported wood itself, to the large comfortable vessels maintaining regular services between the interior ports or between these ports and those on the coasts.

In the case of certain rivers, for which the Amazon will serve as an example—inland navigation is often merely the continuation of an ocean voyage, for these rivers are accessible to ships of deep draught. In addition to steamers and tugs there is an immense variety of sailing ships navigating the inland waterways of Brazil, as well as along the coasts.

From the various methods which might be adopted when describing river navigation, we shall adopt that of describing it State by State ; this will give the best idea of the coasting trade, which is the principal purpose of this type of navigation.

The State of Amazon.—The port of Manaos, the capital of this State, is one of the most important in Brazil. It is situated on the left bank of the Rio Negro, one of the northern tributaries, eight miles from the junction of that river with the Amazon. After the port of Belom du Para, it is the principal centre of the immense river system of the Amazon Basin, of which more than 40,000 kilometres is navigable.

The port of Manaos also has regular services connecting it directly with all the sea-ports of Brazil. The principal company navigating the river system of which Manaos is the centre, is the Amazon Steam Navigation Company. We shall give a list of the lines maintained by this company when we deal with the state of Para. Other enterprises, together with several commercial firms, possess a numerous fleet of steamers, tugs, launches, barges; and there are in addition several less important steam-

ships belonging to their own captains, navigated by the owners from river to river without a fixed itinerary, carrying on commerce as occasion offers.

Among the regular services besides those maintained by the Amazon Company, we may mention the following :—

The service kept up by the boats *Marsos* and *Jane* and the tug *Gallegos*, belonging to J. H. Anderson, which make two voyages a month to all the ports of the river Solimôes as far as Remate de Males ;

The service kept up by the boats *Tapana*, *Canutana*, *Baixo Purus* and *Sylverio Nery*, which navigate the River Yaco and are the property of Armindo Teixeira ;

The service on the rivers Purus, Acre and Colonia, of which the boats belong to Th. de Mendonça & Company ;

Services on several tributaries of the Amazon maintained with boats belonging to the firms of S. J. Diniz, Araujo Rosa & Co., J. A. Soares & Co.

The State of Para :– The Port of Belem du Para is situated on the bay of Marajo which is formed by the estuary of the rivers Maju, Araca and Guama, tributaries of the southern branch of the Amazon. Belem is the principal depot for home and foreign trade in the valley of the Amazon between the Brazilian States of Para, Maranhâo, Goyaz and Matto-Grosso and the Republics of Bolivia, Peru, Ecuador and Venezuela. Imported and exported products passing through this depot are distributed by a large river fleet whose vessels pass up the Amazon to beyond the frontier between Brazil and Peru and navigate all its tributaries — the Tocantins, Xingu, Tapajoz, Madeira, Rio Negro, Coary, Jurua, Javary and many others.

The Amazon Steam Navigation Company, Ltd., one of the oldest navigation companies, carries regular services between the following places : —

1st line. From Belem to Manaos, touching at Breves, Gurupa, Porto de Moz, Prainha, Monte Alegre, Santarem, Alemquer, Obidos, Parintins, Urieurituba and Itacoatiara.

2nd line. The Tapajoz, from Belem to Itaituba, touching at Antonio Lemos, Gurupa, Prainha, Monte Alegre, Santarem, Buim, Aveiras, Urieuritúba and Brazilia Legal.

3rd. line. From Belem to Maues, touching at Boa Vista, Curralinho, Antonio Lemos, Gurupa, Almeirim, Prainha, Monte Alegre, Santarem, Alemquer, Obidos, Villa Juruty, Faro, Parintins and Barreirinha.

4th. line. The Solimoes and Javary, from Belem to Remate des Males, on the river Javary, touching at Manaes, Manacapuru, Codajaz, Coary, Teffe, Caissara, Fonte Boa, Tocantins, S. Paulo de Olivença e Tabatinga.

5th. line. The Madeira, with terminus at Santo Antonio de Rio Madeira and touching at Urucara, Silves, Itacoatiara, Borba, Vista Alegre, Bocca de Rio, Aripuana, Santa Rosa, Manicoré, Bom Future, Bocca de Carapanatuba, Bocca das Tres Casas, Cintra, Humayata, Missao de S. Francisco, Boa Hora and Bocca de Janary.

6th. line. The Purus-Acre, with terminus at Xapury, on the river Acre, and Senna Madureira, on the Purus, touching at Manaos, Manacapuru, Bocca de Purus, Barury, Guajaratuba, Piranhas, Arima, Tanuaria, Jaburu, Bocca de Tapaua, Caretia, Canatuma, Bella Bista, Axioma, Assahytuba, Labrea, Providencia, Sepatiny, Hyutanahan and Cachoeira.

7th. line. The l'Oyapeck, as far as l'Oyapeck, touching at Chaves, Bailique, Amapa, Calcoene and Counani.

8th. line. The Pirabas, terminus at Pirabas, touching at Collares, Porto Salvo, Vigia, S. Caetano, Curuça, Marapanin, Maracanan and Salinas.

All these lines start at Belem. The lines starting from Manaos are the following :—

1st. line. Autazes line, terminus at Castelle, on the river Autaz-Assu ; touching at Bocca dos Autazes, Bom Future, S. Joaquim, Coapiranga, Japeina, Pantaleao, Piratininga, S. José, et Campo Alegre.

2nd. line. Rio Negro Line, ending at Santa Isabel and touching at Purapessasu, Ayrao, Moura, Carvoeire, Barcellos, Moreira and Thomar.

3rd. line. Madeira Line, ending at Santo Antonio on the Madeira, and touching at Borba, Vista Alegre, Bocca de Aripuana, Santa Rosa, Manicoré, Bom Future, Bocca de Carapanatuba, Bocca das Tres Casas, Cintra, Humayta, Missao de S. Francisco, Boa Hora and Janary.

4th. line. Japura line, ending at Jatuarana, touching at Codajaz, Teffé, Coary, Bocca de Japura, Juraba, Jaraquy, Bom Future, Floresta, Recreio, Mameloca, Igualdade, Maguary and Villa Bittencourt.

5th. line. Purus-Acre line, as far as Xapury, on the River Acre, and Senna Madureira, on the River Purus, calling at Manacapuru, Bocca de Purus, Berury, Guajaratuba, Piranha, Itauba, Ariman, Tamaria, Jaburu, Bocca de Yapaua, Caratia, Canutama, Bella Vista, Axioma, Assahytuba, Labroa, Providencia, Sepatiny, Hyutanaham and Cachoeira.

6th. line. Jurua line, as far as Cruzeire do Sul, on the River Jurua, touching at Teffé, Bocca de Jurua, Marary and S. Felippe.

With the collapse of the rubber market there was a corresponding drop in freight rates on the Amazon and its tributaries, followed by a certain decrease in traffic.

State of Maranhao.—The port of Sao Luis de Maranhao is situated on the N.-N.-W. corner of the island of the same name in the estuary formed by the rivers Bacanga and Anil. Owing to the special hydrography of that part of the Brazilian coast, and of its proximity to the equator, the port of San Luis has the highest tides in South America.

Navigation on the rivers of this State is carried on by steamers, sailing ships and towed barges. On several rivers, such as the Itapecuru, rafts and *jangadas*, laden with bales of cotton and other products, may frequently be seen floating down the river with the current. These rafts, coming chiefly from the Picos region, make a voyage of nearly 300 km. as far as Caxias or Rosario, where their cargo is loaded into barges which are towed to the Port of St. Luiz.

River navigation in this State is carried on by the *Companhia de Navegacao a vapor de Maranhao* and the *Companhia Fluvial Maranhense.*

The first-named company owns the following vessels: *Cururupu, Turyassu, Caxias, Cabrai, Carlos, Coelho, Mearim* and *Ypiranga*.

The rivers in the State of Maranhao on which these two companies maintain regular services are the Itapecuru, Mearim, Pindare and Mussim.

State of Piauhy.—The Parnahyba River is the principal waterway in this State. The largest traffic on this river is between the Port of Amarraçao, the only sea-port in Piauhy, and Therezina, capital of the State in the interior.

The Steam Navigation Company of Parnahyba, with headquarters at Therezina, maintains two regular river services: (1) from the Port of Parnahyba and (2) from Floriano Peixoto, the first for the lower and the second for the upper part of the river.

Line 1.—North: From Therezina to the mouth of the Parnahyba, the ports of call are: Uniao, Repartiçao, Porto Alegre and Parnahyba.

Line 2.—South: From Therezina to the upper part of the Parnahyba, the ports of call are: Belem, Amarante, Castelhanos, Miguel Alves, Marrocos, Barra do Souza, Sao Francisco, Grajahu and Floriane Peixoto.

The Steam Navigation Company of the Parnahyba possesses 5 steamships, 3 tugs and 10 large barges.

The firm of P.T. de Oliveira & Company also possesses 1 steamboat which navigates the Parnahyba.

State of Ceara.—River navigation in this State is so insignificant that it may be said not to exist. It is only possible for small boats on very short sections, in the lower parts of the rivers, near their mouths, along the tidal reaches. Moreover, during the summer, which never lasts less than seven months, the beds of the rivers are usually dry.

State of Rio Grande de Norte.—There is no steam river navigation in this State; only a few small sailing-boats navigate the tidal reaches of the rivers.

State of Parahyba.—No river navigation, except that carried on by small sailing-boats on the tidal reaches of the river.

State of Pernambuco.—The only river navigation in this State is on the Bahia frontier, along which flows the river Sao Francisco. With this exception, what was said with regard to Ceara, Rio Grande do Norte and Parahyba applies also to this State.

State of Alagoas.—Inland navigation in this State is confined to the lower stream of the Sao Francisco, which forms the frontier with the State of Sergipe, and to the lakes and lagoons (lagoas) from which the State of Alagoas takes its name. The lower Sao Francisco, to an extent of 277 km., is navigated by the *Companhia de Navegacao de Baixo Sao Francisco*, which runs a regular service between the town of Penedo and Piranhas (eastern terminus of the railway from the falls of Paulo Affonso). Boats

from Penedo to Piranhas call at the following places: Propira, Collegio, S. Braz, Traipu, Gararu, Ilha de Ouro, Bello Monte, Pao de Assucar and Entremontes.

The fleet employed includes the following steamers: *Sinimbu, Maceio, Moxoto, Paulo Affonso, Pendense, Ypanema.*

Navigation on the lakes and lagoons is carried on mainly by sailing-boats, large canoes and launches. A petrol-driven boat maintains a passenger service on the northern lakes and the lake Mangaba, which are united by canals and connect the principal towns of this State.

State of Sergipe.—In addition to the service on the lower Sao Francisco mentioned above, this State possesses a line of shipping in the basin of the Cotinguiba, between Aracaju, Maroim, Caranleiras and Riachuele, consisting of the passenger-boats *Laranjeiras* and *Maroim* (60 and 80 tons), tugs, barges and sailing vessels. A steamship service is maintained by the *Empreza Fluvial de Navegacao à Vapor,* established at Aracaju.

State of Bahia.—This State possesses the largest number of good ports in Brazil. A very important company *(Empreza de Navegacao Bahiana)* maintains regular services between the capital and the ports of Maragogipe, Cachoeira, Villa de Sao Francisco, S. Amaro, Jaguaripe, Nazareth, Madre de Deus, Bon Jesus, S. Estovao, Valença, Itaparica and Salinas da Margarida. There are departures once a week for St. Estavao, for Valença and ports of call every fortnight, for Itaparica daily, and for the other ports mentioned above three times a week.

This company employs the following ships: *Conselheiro, Dantas* (200 tons), *Gonçalves Martins* (100 tons), *Nazareth* (100 tons), *Boa Viagem* (100 tons), *Santo Antonio* (100 tons), *Itaparica* (80 tons), *Mauricio Manderley* (60 tons), *Esperança* (50 tons), and *Fé* (50 tons).

State of Espirito Santo.—Although this State possesses a remarkable hydrographic system, of which the Rio Doce, with its string of lakes, is the most striking feature, it has developed its inland navigation very little, and has nothing but small vessels, mainly sailing craft. This is due to the sparseness of population in the interior, especially in the North. The population is mainly to be found upon the sea-coast. Hence the importance of the coasting trade and the small attention paid to inland navigation.

State of Rio de Janeiro.—The rivers in this State are unsuited for navigation. The most important, the Parahyba de Sul, had a line of steamships from Sao Joao da Barra to the port of Sao Fidelis, at its mouth. This service is to-day limited to the first section, between Sao Joao da Barra and Campos. Upon short sections of the same river, which is cut up by rapids, navigation is carried on by small steamers or sailing-vessels not over 1 metre in draught. Navigation on the lakes and lagoons of this State is only of local interest.

State of Sao Paulo.—This State is traversed by great rivers which, descending from the plateau to the Parana Valley, meet with too many

obstacles to be suitable for navigation. For this reason the state of S. Paulo does not possess an inland navigation system corresponding to its economic importance. With a view to increasing their traffic, two railway enterprises have organised river transport on certain parts of the rivers Mogy-Guassu, tributary of the Rio Grande, Piracicaba and Tiete. But the line established by the *Compagnie Paulista de Linhas Ferreas e Fluviales* on the river Mogy-Guassu between Port Ferreira, Pitangueiras and its junction with the Rio Pardo (200 kilometres) was abolished in consequence of the construction of a railway-line serving this valley.

The *Uniao Sorocabana Ituana* Railway has established a service covering 126 kil. on the river Piracicaba between the port of Joao Alfredo and the mouth of the Tiete and a service covering 94 kil. on the Tiete between the ports Martins and Ribeiro.

A firm established at Santos runs a river service to the seaport Iguape ; there are three lines, covering 320 kil. in all.

First Line.—Iguape to Xiririca, 154 km., with one modern boat, the *Candide Rodrigues* (36 tons).

Second Line.—Iguape to S. Antonio, one boat (30 t.)

Third Line.—Iguape to Sabauna, one boat.

This service comprises 48 return journeys per year between Iguape and Sabauna ; 36 return journeys between Iguape and Xiririca and 24 return journeys between Iguape and S. Antonio.

State of Parana. As in the State of S. Paulo, the large rivers flowing through the State of Parana are full of obstacles. River navigation here is accordingly limited to two sections of the Iguassu and Negro rivers.

Iguassu Line.—Between Porto da Uniao and Amazonas (terminus of a branch line of the Parana-Rio-Grande Railway. This service is carried on by five steamships ; it is sometimes interrupted owing to scarcity of water.

Rio Negro Line.—One small steamer.

State of Santa Catharina.—Steamers navigate the rivers Iguassu, Negro, Itajahy, and their branches between the towns of Sao Francisco and Joinville.

This service is maintained by the *Empresa de Navegação Joinvillense* and the *Companhia Fluvial Itajahy*, the first company having two steamships, the second three. *The Companhia Industrial*, together with other firms, has boats employed in goods transport.

State of Rio Grande do Sul.—Inland navigation in this State is of great importance. Besides the great number of small sailing vessels and steamers belonging to private persons, there is a large fleet carrying on regular services as follows :

1st line.—This line calls at the following places : Rio Grande, Jaguarao, Pelotas, Santa Victoria de Palmar and Santa Izabel. The service is kept up by the *Linha Regular de Navegaçao Fluvial*, which possesses four steamers, one tug and a number of barges.

2nd line.—A second service between Rio Grande, Pelotas and Porto Alegre is carried on by the *Transportes Maritimo Telles & Cie.*, which owns three tugs and numerous barges, and by the *Stooss Watchel & Cie*, which owns four tugs and a fleet of auxiliary vessels.

3rd line.—This line connects Porto Alegre with Margem, and carries passengers for the railway from Porto Alegre to Uruguayana, with two departures daily.

4th line.—This line connects Porto Alegre with Sao Lourenço and Sant'Angelo ; it is operated by *J. Becker & Cie.* Two departures per week.

5th line.—This line calls at the following places : Porto Alegre, Santo Amare, Dourado, Rio Pardo, Bexiga, Cachoeira, Passo Seringa, Sao Lourenço Jacuhy, Pau à Pique, Pesqueira, Porto da Estrada, Castro, Macaco, D. Francisco, Porto Alto on the river Jacuhy (about 300 km.).

6th line.—This line connects Porto Alegre with the port of the river Cahy. It is operated by the *Companhia de Navegaçao do Cahy*, which owns two steamers of 60 tons (95 km.).

7th line.—This line connects Porto Alegre with the ports on the river Taquary. It has four steamers, with three departures per week.

8th line.—This line connects Porto Alegre with the ports on the river dos Sinos, with its terminus at S. Leopoldo.

9th line.—From Porto Alegre to Barra da Ribeira; three departures per week.

10th line.—From Porto Alegre to Pedras Brancas; daily departure in both directions.

11th line.—From Porto Alegre to Palmar, on the lagoon dos Patos; two departures per month.

12th line.—From Porto Alegre to Taipes on the lagoon dos Patos ; one departure per month.

13th line.—From Porto Alegre to Gravatahy.

14th line.—From Porto Alegre to Jaguarao and Santa Victoria *(Leivas, Sobrinhos & Cie.)*.

15th line.—Navigating the rivers Ibicuhyb and Uruguay from Cacequi to Uruguayana, Itaqui and Sao Borja.

16th line.—Navigating the Uruguay with three steamers belonging to the *Companhia Ferro Carril Leste Argentina.*

State of Matto Grosso.—Situated far in the interior of Brazil, this State is at a great distance from the sea, but it is traversed by great rivers which flow north or south emptying into the Amazon or the Parana. It is in this region that these two enormous basins come so close to each other that a canal of about 7 km. connecting the river Aguapehy, a tributary of the Jauru, with the river Alegre, a tributary of the Guaporé, would establish a waterway between the Amazon and the Plata. This will suffice to indicate the future of this State from the point of view of navigation. The construction of this canal was begun in 1773 but was abandoned owing to lack of funds. There is every sign that it will be resumed some day.

At the present time communications by water with Matto Grosso are provided by the rivers Parana, Paraguay and their tributaries.

The *Brazilian Lloyd* has two shipping lines on these rivers ; one plies from Montevideo to Corumba along the Parana and the Paraguay, the other from Corumba to Cuyaba along the rivers Paraguay, Sao Lourenço and Cuyaba.

State of Goyaz.— This State is situated far from the sea and, like Matto Grosso, is traversed by large rivers ; but its communications with the other parts of the Republic are mainly by land. The rivers Tocantins and Araguaya are best adapted to extensive navigation. At the present time steamers on the Tocantins do not go further than the port of Alcobaça, 350 km. from Para ; the two vessels on this line are the "Tocantins" (200 tons) and the tug "Alcobaça". Above the port of Alcobaça as far as Praia da Raiha, the course of the river is broken by waterfalls and numerous rapids. Above this section, although there are more waterfalls, navigation is actively resumed, only, however, by sailing vessels, towed barges and punts ; these are small boats which carry salt, or trade in all kinds of goods between the States of Goyaz and Para. Another river, the Araguaya, also lends itself to trade ; it is freely navigable for 1,200 km. in the territory of Goyaz; elsewhere the conditions are the same as on the Tocantins.

Inland navigation, which is carried on particularly for the purposes of the coasting trade, is almost exclusively confined to craft flying the Brazilian flag. But on some of the inland waterways, especially in the provinces of Amazon, Para, Rio Grande do Sul and Matto Grosso, there are also some international services which are operated partly under the Brazilian and partly under foreign flags. International navigation in the interior of Brazil only exists on rivers which are common to this country and to neighbouring republics ; it is regulated by treaties between the countries concerned, which provide for free navigation subject to the constitutional reservation which ensures a monopoly of the coasting trade to the Brazilian flag. The following are the foreign river companies : Argentine, Peruvian, Bolivian, Paraguayian, as well as others of less importance belonging to various nationalities.

Coasting trade on the rivers includes long-distance and local coasting trade. If the features which we have indicated as characterising these two kinds of navigation, and the routes followed by the lines which we have mentioned are borne in mind, it can be readily seen in each case whether the traffic is of an international nature or consists of long-distance or local coasting trade.

Amongst the river ports which constitute the most important centres for the coasting trade, the following may be mentioned : Cruzeiro do Sul, Senna Madureira, Campinas, Porto Acre, Apaporys, Jea Brasileiro, Porto Velho, Manoas, Itacoatiaria, Obidos, Belem, Parnahyba, Penedo, Pelotas, Porto Alegre, Santa Victoria do Palmar, Jaguarao, Uruguayana, Itaqui, Sao-Borja, Corumba, Porto Murtinho, Porto Esperança.

Particulars regarding the sea and river-coasting trade will be found in the section devoted to the sea-coasting trade.

B.—COASTAL NAVIGATION.

Navigation along the Brazilian coasts is of two kinds: (1) coasting trade; (2) port-to-port services maintained by the long-distances lines. In this chapter we shall only deal with the coasting trade; the other question will be dealt with when we come to consider long-distance navigation.

The coast of Brazil has an extent of more than 6,000 km., forming a salient which juts out into the Atlantic. The apex of this triangle is Cape S. Roque; one of its sides extends to the north-west as far as the mouth of the Oyapock, and the other to the south-west as far as the mouth of the Chuy. The bays and inlets on the Brazilian coast afford a great number of safe ports and good anchorages.

Amongst the seaports capable of accommodating vessels drawing more than 6 metres, the following may be mentioned:

State of Para: Belem.

State of Maranhâo: Alvantara and the island of Medo in the Bay of S. Marcos, Tutoya.

State of Ceara: Fortaloza, Mucuripe, Retiro Grande.

State of Rio Grande de Norte: Natal, Bahia Formoza, Pitinga.

State of Parahyba: The ports in the Bay of Traiçâo.

State of Pernambuco: Recife, Tamandaré.

State of Alogoas: Maceio.

State of Bahia: San Salvador (Bahia), Gamamu, Ilheus, Santa Cruz, Cabralia.

State of Rio de Janeiro: Abrahâo (Ile Grande), Buzios, Imbitiba.

Federal District: Bay of Rio de Janeiro or Guanabara.

State of S. Paulo: Santos, S. Sebastiâo, Bom Abrigo (island).

State of Parana: Paranagua, Antonina.

State of Santa Catharina: The Bay of Norte, Ratones, Caieira, Gauchos, Bombas, Itapaceroy.

State of Rio Grande do Sul: Rio Grande, Porto das Torres.

For vessels drawing less than 6 metres there are innumerable anchorages, of which the following may be mentioned:

State of Para: Calçoene, Amapa, Marapinim, Maracanan, Salinas, Bragança, Vizou.

State of Maranhâo: The roadsteads of Meio, Caju, Carnauba, Preguiça, Lago.

State of Piauhy: Amarraçao.

State of Ceara: Aracaty, Choro, Lagoinha, Mundahu, Acarahu.

State of Rio Grande do Norte: Cajahu, Macao, Mossoro.

State of Parahyba: Cabadello, Mamanguapo.

State of Pernambuco: Roadstead of Rio Formoso, Serinhaem, Gallinhas, Pau Amarello, Itamaraca, Goyanna.

State of Alagoas: Camaragibe (5 m.).

State of Sergipe: Roadstead of Rio Real, Aracaju.

State of Bahia : Caravellas (5 ½ m.), Alcobaça, Prado, Bay of Frado, Porto Seguro, Balmonte, Cannavieiras.

State of Espirito Santo : Guarapary (5 m.), Benevente, Victoria, S. Matheus.

State of Rio de Janeiro : S. Joao de Barra, Campos, Imbetiba, Macahé, Angra dos Reis, Mangaratiba, Paraty, Jurumirium, Mambricaba.

State of Sao-Paulo : Palmas (Island of Porcos), Cananéa, Iguape.

State of Santa Catharina : Florianopolis, Garopaba, Imbituba, Laguna, Porto Bello, Sao Francisco, Itajahy.

The tables of distances between the principal coasting ports as given in official documents, will be found in the annexes.

We shall now give a short summary of the coastal navigation of Brazil from the two-fold point of view of local and long-distance coasting trade.

1.—*Long-Distance Coasting Trade.*

Long-distance coasting traffic is carried on in Brazil by various enterprises. There are shipping lines organised as limited-liability companies and others which belong to commercial firms or private individuals.

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The most important of these lines is the *Brazilian Lloyd*.

This company is subsidised by the Federal Government. It possesses a large fleet which is the most important part of the Brazilian merchant marine. This fleet consists for the most part of entirely modern steamers, from the elegant and comfortable packet-boat which plies on the inter-oceanic, coastal and river routes, to the small vessel used for coasting traffic both by sea and river. This coasting traffic extends to the remotest inland parts of Brazil.

The coastal services which are now maintained by the Brazilian Lloyd — leaving aside for the moment long-distance services — are the following :

Two Northern Lines. Departures every Friday from Rio d eJaneiro.

1. *The Rio-Para line*, with two sailings per month, calling at Victoria, Bahia, Maceio, Recife, Cabedello, Natal, Ceara, Maranhâo, Para.

This service is kept up with three steamers, the *Ceara, Bahia* and *Para*.

2. *The Rio-Manaos line*, with two sailings per month, calling at Victoria, Bahia, Maceio, Recife Cabedello, Natal, Ceara, Totoya, Maranhâo, Para, Santarem, Obidos, Parintins, Itacoatiara and Manaos.

This service consists of three steamers, the *Joao Alfredo, Acre* and *Manaos*.

SOUTHERN LINE :

3. *The line Rio de Janeiro - Buenos Aires*, with two sailings per month, first and third Wednesday, calling at Santos, Paranagua, Antonina, S. Francisco, Itajahy, Florianopolis, Rio Grande, Montevideo and Buenos Aires.

This line includes the steamers *Siro, Servulo, Dourado*, and *Ruy Barbosa*.

These steamers take passengers for Pelotas and Porto Alegre, with a connection for Rio Grande, and also for the ports in the province of Matto Grosso with a connection for Monte Video.

NORTH - SOUTH LINE :

4. The *line Recife - Buenos Aires*, with two sailings per month on the second and fourth Wednesday of each month, calling at Recife, Maceio, Bahia, Rio de Janeiro, Santos, Paranagua (on the southward voyage), S. Francisco (on the southward voyage), Rio Grande, Montevideo and Buenos Aires.

The steamers on this route are the *Rio de Janeiro, Minas Geraes* and *Sao Paolo*.

These steamers take passengers for Pelotas and Porto Alegre, with a connection for Rio Grande, and also for the ports in the Province of Matto Grosso, with a connection for Montevideo.

THREE AUXILIARY LINES : Two for the South, one for the North, starting from Rio de Janeiro.

5. The *Santa Catharina line*, calling at Santos, Paranagua, S. Francisco, Itajahy, Florianopolis, Laguna.

6. The *Parana line*, calling at Dous Rios, Angra dos Reis, Paraty, Ubatuba, Caraguatuba, Villa Sella, S. Sebastiâo, Santos, Gananéa, Iguape, Paranagua, Quaratuba.

7. The *Sergipe line*, calling at Victoria, Caravellas, P. Areia, Ilhéos, Cannavieiras, Bahia, Aracaju.

TWO LINES OF FREIGHTERS : One for the South, the other for the North, starting from Rio de Janeiro.

8. The *Rio - Para line*, calling at Victoria, Bahia, Recife, Macao, Messoro, Ceara, Maranhao, Para. Boats : *Guajary, Amazonas, Gragança, Tabatinga*.

9. The *Rio – Porto Alegre line*, calling at Santos, Paranagua, S. Francisco, Rio Grande, Pelotas, Porto Alegre. Boats : *Mantiqueira, Mocaina, Borborema, Pyrineus, Cubâtao*.

The tables of distances between the ports served by the Brazilian Lloyd will be found in the annexes. This company, as we have seen, is responsible for the long-distance coasting traffic on the rivers Amazon and Paraguay.

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The National Coastal Navigation Company (Companhia Nacional de Navegaçao Costeira). — A company of which the chairman is M. A. M.

Lage Filho, and which has its headquarters at Rio de Janeiro, carries passengers and goods for the North and South of the Republic under the new contract entered into with the Federal Government in 1915. Its lines are the following :

1. *North-South line*, between Porto Alegre and Recife, comprising the following services :

(a) One voyage per week, both ways, leaving on Thursdays, between Porto Alegre and Rio de Janeiro, calling at Pelotas, Rio Grande, Florianopolis, Paranagua, Antonina and Santos on the outward voyage, and at the ports of Santos, Antonina, Paranagua, S. Francisco, Rio Grande and Pelotas on the return voyage.

(b) One voyage per week, both ways, connecting with the previous service, between Rio de Janeiro and Recife, calling at the ports of Victoria, Bahia and Maceio.

2. *Auxiliary Southern line*, between Rio de Janeiro and Porto Alegre: One voyage per week both ways, calling at Paranagua, Florianopolis, Rio Grande, Pelotas on the outward journey, and Pelotas and Rio Grande on the return journey.

3. *Auxiliary Northern line*, between Rio de Janeiro and Natal, connecting with the previous service. One voyage every fortnight, calling at Bahia, Recife and Cabedello both ways.

4. *Auxiliary line between Rio de Janeiro and Rio Grande do Sul:* Two voyages per month, both ways, between Rio de Janeiro and Rio Grande, calling at Angra dos Reis, Ubatuba, Caraguatuba, Villa Bella, S. Sebastiâo, Santos Cananéa, Iguape, Itajahy, Florianopolis.

5. *Freight service:*

(a) Line between Rio de Janeiro and Mossoro; one voyage per month, calling at ports according to circumstances. This route will be extended as far as Manaos as soon as the company has obtained the ships which it expects to get.

(b) Two auxiliary lines, North and South, sailing according to circumstances: (1) Rio de Janeiro-Porto Alegre line, putting in as required. (2) Rio de Janeiro-Recife line, putting in as required.

In addition to the regular voyages on the above routes, the company undertakes special voyages according to the needs of the ports with which it trades.

In the services subsidised by the Federal Government, the company employs the following vessels : *Itajuba, Itapema, Itapuna, Itauba, Itapura, Itatinga, Itassuce, Itipacy, Itaquera, Itagiha, Itabora.*

In the unsubsidised services, the company uses its other vessels.

In accordance with the regulations governing the merchant marine and the coasting trade, all these vessels have wireless installations.

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Companhia Commercio e Navegaçao, owned by Pereira Carneiro et Companhia, Limitada.—This company, with head quarters at Rio de Janeiro,

engages in the long-distance coasting trade for Northern and Southern Brazil.

NORTHERN LINES:

(1) *Rio-Para Line*, calling at Victoria, Bahia, Maceio, Recife, Cabedello, Natal, Ceara, Maranhao.

(2) *Rio-Ceara Line*, calling at Victoria, Ilheus, Bahia, Aracaju, Maceio, Recife, Macao, Mossoro, Aracaty, Cera, Camocim.

SOUTHERN LINES:

(3) Rio-Parana Santa Catharina Line.
(4) Rio-Rio Grande do Sul Line.
(5) Rio Montevideo-Buenos Ayres Line.

This company owns a considerable fleet, among which the following vessels may be named:

Pirangy, Mossoro, S. Luiz, Jaguary, Assu, Araguary, Parahyba, Aracaty, Canoé, Maroin, Natal, Guahyba, etc.

Companhia de Navegaçao, Rio de Janeiro. This company maintains two regular services, one to the North and one to the South, as follows:

1. *Northern Line:* Rio to Caravellas, calling at Itapemirim, Picima, Benevente and Victoria.

2. *Southern Line:* Rio to Itajahy, calling at Santos, Paranagua, Antonina, Florianopolis, S. Francisco.

The *Garcio e Sirio Maritime Service Company* maintains a service of two voyages per month from Rio southwards:

1. *Rio-Iguape*, calling at Angra dos Reis, Paraty, Ubatuba, Cataguatuba, Villa Bella, S. Sebastiao, Santos, Covanca.

2. *Rio-Itajahy*, calling at the same places as 1, and also at Paranagua and Antonina.

Empreza Esperança Maritima Company. has a north and south coasting service from Rio de Janeiro with the steamships *Industrial, Alexandria, Esperança, Belem, Fortaleza, Recifo.*

1. *Northern Line:* Rio to Aracaju, calling at the ports of the State of Bahia and Sergipe.

2. *Southern Line:* Rio Santa Catharina, calling at Santos, Iguape, Laguna.

S. Joáo de Barro e Campos Company carries on coasting trade between the States of Rio de Janeiro and Espirito Santo, and along the coast of the State of Rio de Janeiro between the ports of S. Joâo de Barro and Campos. It owns the following vessels: *Fidelense, Carangola, Pinto, S. Joâo de Barra, Teixeirinha* and *Campos* and also the steamships *Cunha, Pery, Miracema* and *Cachoeire.*

Costa Ribeiro & Cie, headquarters at Rio de Janeiro, carry on coasting trade between Rio de Janeiro and ports in the States of Parana and Santa Catarina.

Long-distance coasting trade is also carried on by companies with headquarters at Bahia, Pernambuco, Maranhâo and Para.

The *State of Bahia Company*, with headquarters at S. Salvador de Bahia, navigates the coast of that and the neighbouring States as follows :

1. *Northern Line :* Two return voyages per month between S. Salvador de Bahia and Recife, calling at : Estancia, Aracaju, Villa Nova, Penedo and Jaragua.

2. *Central Line :* One return voyage per month between S. Salvador and Belmonte, calling regularly at Marahu and Rio das Contas, and when required at Ilheos and Cannavieiras.

3. *Southern Line* : Two return voyages per month between S. Salvador and Mucury, calling at Ilheos, Cannavieiras, Santa Cruz, Porto Seguro, Prado, Alcabaça, Ponta d'Areia, Caravellas and Viçosa. Boats : *Ilhéos, Porto Seguro, Cannavieiras, Marahu, Joquitinhonha, Commandatuba,* and *Guararapes.*

(For distances see Annexes).

Companhia Pernambucana.—This company, which was founded in 1838 with headquarters at Pernambuco, carries passengers and goods from the State of Pernambuco to the States of Parahyba, Rio Grande de Norte, Ceara, and Piauhy and to north, and to the States of Alagoas, Sergipe, and Bahia to the South. It maintains the following lines :

1. *Northern line from Pernambuco to Amarraçao:* Two voyages per month, calling at Parahyba, Natal, Macao, Mossore, Aracaty, Fortaleza and Camocim.

2. *Southern line, Pernambuco-Bahia :* Two voyages per month, calling at Maccio, Ponedo and Aracaju.

3. *Line from Pernambuco to Fernando de Noronha :* One voyage per month. A call is sometimes made at Rocas, for the transport of the staff and material required for the service of the lightthouse on this island.

This company owns the following steamships : *Joboatao, Boberibe, Una, S. Francisco, Jacuhype, Rio Formoza, Camocim, Capeberibe.*

Companhia de Navegaçáo a Vapor de Maranhao.—This Company, which is now controlled by the Government of the State of Maranhoa, has its headquarters at S. Luiz, and, under the contract concluded in 1915 between this Government and the Federal Government, supplies the coasting service on the following routes :

1. *Northern Line*, between S. Luiz and Belem : One return voyage per month, leaving on the first of each month, calling at Pinheiro, Guimaraos, Cururupu, Turyassu, Carutapeia, Vigeu, Braganca.

2. *Southern Line*, between S. Luiz and Natal (calling regularly) or from S. Luiz to Recife (calling when required), leaving the first of each

month, and calling at Barreirinhas, Tutoya, Amarraçao, Camocim, Ararahu, Fortaleza, Aracaty, Mossore, Macau, Natal and Recife.

3. *Central Line* between S. Luiz and S. Bento (sea and river service); one voyage per month, leaving on the 30th of each month and calling at S. Luiz, Alcantara and S. Bento.

(See table of distances in the annexes).

Amongst the steamships on this service are the following: *Curupuru, Turyassu, Cabral, Carlos Coelho, Mearim, Ypirange, Caxias.*

Amazon Company. (Amazonas Steam Navigation Company Ltd.)—As we have seen, this Company, whose headquarters ar eat Belem, navigates the Amazon and its tributaries, under the contract concluded in 1912 with the Federal Government; it also maintains two maritime services on the noth and south coasts of the State of Para.

1. *Line of the Oyapock* (Northern Service), between Belem and the Oyapock—a voyage of 1,460 miles—18 voyages per annum, calling at Chaves, Bailique, Amapé, Calçoene and Counani.

2. *Pirabas Line* (Southern Service), between Belem and Pirabas, a distance of 400 miles, with 18 journeys per annum, calling at Collares, Porto Salvo, Vigia, S. Caetano, Curuça, Marapanim, Maracanan and Salinas.

2.—*Local Coasting Trade.*

As we have said, the local coasting trade is carried on within the limits of the same State and between those ports of two neighbouring States which are situated near their common frontier. The boats used are principally sailing vessels varying widely in type according to the region and the requirements of the ports, with some steamers of shallow draught. In the local coasting trade there are numerous regular services, while the smaller vessels engaged in it sail at irregular intervals according to the requirements of the trade and the variable conditions of navigability on the coasts which they serve. The tide, the effect of which is felt not only along the coasts but in the rivers and lakes, is an important factor in this navigation. The small coasting trade renders great services to commerce between little-known localities and to the small agricultural industry which is carried on in all parts of the country.

We have seen that great developments have been made in the local river trade and even greater in the maritime local coasting trade. It must not be forgotten that, in almost all Brazilian States, there are small trading services on both sea and river, as a result of which the ports on the coast are kept in constant touch with the most distant ports in the interior.

Among the steamer and sailing vessel services which are engaged in this kind of navigation, we must recall those which are maintained regularly by the large navigation companies mentioned above, and also those which belong to commercial firms or private individuals in the various States of Brazil.

State of Para. In addition to the regular services from Belem to the northern ports, including those in the island of Marajo, and to the southern ports, voyages are made at irregular intervals, as in all the other States, by small sailing vessels.

State of Maranhao.—The local coasting traffic, both maritime and maritime-river, is highly developed in this State. It is carried on between the capital, St. Luiz, and the ports situated either on the coast or near it, in the bays formed by the rivers, or even further in the interior, on rivers navigable to the numerous steamships and sailing vessels which ply along the coast. Some of these ports are: Caratupera, situated at the junction of the river of the same name with the river Gurupy, 12 km. from its mouth; Tury Assu, on the River Joao, an affluent of the Tury-Assu; Cururupu, a seaport, in the bay of the river Cururupu; Guimaraes, on the bay of Cuman, at the mouth of the river Piricuman; Barreirinhas, on the river Preguiças; Tutoya, the best seaport in the State of Maranhao, at the most westerly mouth of the river Parnahyba.

There is a large number of sailing vessels and a few steamers carrying on active navigation in the bays of S. Marcos and S. Jose. These two bays connect the island of Sao Luiz with the ports of the mainland, such as Alcantara, and with the interior districts by various rivers. The local coasting trade around the Island of Maranhao must also be mentioned. A much-frequented route near the capital is that taking in the Bay of Itaqui, the River dos Coqueiros, the canals Estreito and Mosquito, the Bay do Arraial, Sao Jose Bay and the River Prea, which connects Sao Luiz with the town of Miritiba, at a distance of 12 kilom. from Primeira Cruz, at the mouth of the Prea.

Alcantara, a port on the bay of S. Marcos, is also a centre of maritime-river trade; the rivers Jacaruana, Itapening, Maray and St. Joao das Cortes connect the inland districts with this port.

The local coasting trade in the northern part of the State of Maranhao extends beyond its frontier with the State of Para, and maintains regular communications between the northern ports of Maranhao and those of Para, as far as Belem. In the southern part of Maranhao it extends as far as the port of Ceara. Tutoya, in the State of Maranhao, is the centre of the local coasting trade between the towns on the estuary of the Parnahyba, so that the trade of the States of Maranhao and Piauhy merges at their maritime frontier. The tides are an important factor in the coasting trade of Maranhao.

State of Piauhy.—Local coasting trade is carried on chiefly by small sailing vessels along the short stretches of the coast between the mouth of the river Parnahyba, to the North, and the mouth of the Timonha, to the South; the port of Amarraçao is the principal centre for navigation in this State. It is a centre for local sea and river coasting traffic.

State of Ceara.—This State has several ports which are very active in coasting trade. The chief port is Fortaleza, the capital of the State.

Amongst these ports, which are regularly visited by steamships and sailing vessels, we may mention, besides Fortaleza, the following : *Camovim, Aracaty, Acarahu, Mundahu.* Among the small sailing-craft we may mention the *Jangadas.* These vessels, which sail on the open sea far from the coast, are generally used for fishing, but some of the largest of them take part in the local coasting trade.

State of Rio Grande de Norte.—There is a very active coasting tra d in this State, carried on (particularly as regards the transport of sa small steamers, tugs, large pinnaces, and sailing vessels of various types. The chief ports are the following : Natal, Macau, Areia Branca. Several small ports must also be mentioned : Cangaretama, Touros, Cunhau, Gallinhas, etc.

State of Parahyba.—The commerce of this State is carried on principally through the port of Recife in the State of Pernambuco, but there are also regular small trading services, the centre of which, on the coast, is the port of Cabedello. The chief centre of sea and river trade is the port of Parahyba, capital of the State, situated a short distance from the mouth of the river Parahyba.

State of Pernambuco.—This State has a regular local coasting trade. Maritime traffic is very active, and is carried on by about 100 small steamers and sailing vessels. The coasting trade, which has its centre at the port of Recife, extends to the north beyond the frontier to the ports of Parahyba, and to the south, as far as the ports of Alagoas.

State of Alagoas.—This State possesses a large number of ports, some on the coast itself and others near it, on bays formed by the mouths of rivers or in the inlets of lagoons which communicate with the sea. The principal port is Jaragua, near which is situated the capital of the State. The local coasting trade is very active, and there are regular services between the ports of Barara Grande, Camaragibe, Santo Antonio Grande, Porto das Pedras, Penedo, Cururipe, Pituba, Francez and Barra de S. Francisco. Sea and river traffic is very considerable in this State, owing to its lakes and numerous lagoons.

State of Sergipe.—Local coasting trade is carried on in this State between Aracaju, near the mouth of the river Cotinguiba, and the ports of Estancia and S. Christovao. It may be noted that this State keeps up a very active coasting trade with the neighbouring State of Bahia.

State of Bahia.—The port of Bahia, the centre of the important navigation of this great State, is one of the best ports in Brazil. This State possesses the largest number of ports open to commerce. The coasting trade here is highly developed ; it is carried on by regular services and by a large number of steamers and sailing vessels, which sail at frequent

but irregular intervals, between secondary maritime centres such as Ilheos, Porto Seguro, Cannavieiras, Caravellas, etc.

State of Espirito Santo.—Local coasting trade is considerably developed. Victoria is the principal port. This port and those of Piuma, S. Matheus, Benevente, Itaperim benefit by frequent regular services of steamers and sailing craft, not to mention the numerous sailing vessels which call at irregular intervals according to requirements.

State of Rio de Janeiro.—The great port of Rio de Janeiro in the Bay of Guanabara is the centre towards which the whole of the coastal navigation of this State is directed. Small coasting trade, both by sea and by sea and river, is highly developed in this State. The coastal ports which are most frequently used by regular lines are Angra dos Reis, Paraty and Imbetida. The port of Cabo Frio, in the lagoon of Araruama, is a centre of maritime river navigation.

State of Sao Paulo.—The principal centre of coasting trade in this State is the great port of Santos. There are regular and frequent services engaged in sea and river traffic, with terminus at the port of Iguape.

State of Parana.—The two chief ports of this State are Panaragua and Antonina. The port of Guaratabu only gives access to vessels of small draught. The local coasting trade is fairly active.

State of Santa-Catharina.—This State possesses several ports regularly served by numerous steamships and sailing vessels. The best is the port of Sao Francisco, which is one of the best ports in Brazil. Mention must also be made of the ports of Florianopolis (capital of the State), Laguna, Porto Bello, Itajahy, and Garopava, between which the coasting trade is very active. There is also a large maritime-river trade.

State of Rio Grande do Sul.—This State, the interior ports of which are very numerous, possesses only two seaports, Rio Grande and Porto das Torres. The vast sandy plain which forms its coastline is an obstacle to the establishment of other commercial seaports. For this reason the local maritime - river coasting trade is very active, while there is comparatively little purely maritime coasting traffic. The port of Rio Grande is connected by a long canal with the lakes and lagoons of this State. The principal centre for small coasting trade is Porto Alegre, the capital of the State, a very important port constituting a terminus for the great inland waterways of the State and for ocean lines. Porto Alegre is situated on the river Guahyba, and is directly connected with the seaport of Rio Grande by the lagoon dos Patos (Lagoa dos Patos). Polotas, on the river S. Goncalo, is connected with Porto Alegre by the same lagoon. It is here that the greatest activity in the local maritime-river traffic of this State is to be found. Another inland port which is connected with the sea is Jaguarao, on the lagoon of Mirim (Lagoa Mirim) ; it is a port for

local coasting trade. This trade is carried on by steamers and sailing vessels of considerable aggregate tonnage. Several navigation companies, such as the Brazilian Lloyd, carry on navigation on the Lagoa dos Patos by large steamers of a special type such as the *Mercedes* and the *Venus* which connect with the regular long-distance coas- ting services.

C.—OCEAN-GOING NAVIGATION.

Ocean navigation is carried on by several lines which maintain regular services, and also by a large number of steamships and sailing vessels making voyages at irregular intervals. Some of the regular lines are Brazilian, and others—more numerous—are foreign. Besides the international service, these lines provide port-to-port services along the Brazilian coast. It must be recalled here that international navigation is not only maritime,—it is also carried on by river.

The following are the Brazilian lines navigating ocean routes :

Brazilian Lloyd :—The Brazilian Lloyd operates the following lines :—

Two lines to Europe :

1. The North European Line—the steam packets *Cuyaba, Santos, Pocone*—connects the principal ports of Brazil with Lisbon, Plymouth, Havre, Antwerp and Hamburg.

2. The Mediterranean Line—the steam packets *Benevente, Maranguape, Macapa*—connects the principal ports of Brazil with Gibraltar, Oran, Algiers, Marseille, Genoa, Barcelona and Almeria.

One line to North America :

3. The North American Line—the steam packets *Avare, Curvello, Uberaba*—connects the principal ports of Brazil with Barbados and New York.

The *National Lloyd*.—(Sociedades anonyma de Navegaçao) maintains a regular service between the ports of Brazil and those of the Mediterrannean, especially Marseilles, Genoa and Barcelona, and also various services along the Brazilian coast.

This company owns the following steamships : *Asia*, 6,000 tons ; *Europa*, 6,000 tons ; *Belem*, 4,500 tons ; *Campeiro*, 4,000 tons ; *Campinas*, 3,500 tons ; *Marne* 4,000 tons ; *Piave* 4,000 tons ; *Neuquen* 2,500 tons ; *Rio Amazonas* 2,500 tons ; *Natal* 2,000 tons ; *Antonina* 2,000 tons ; *Campista* 1,500 tons ; *Guanabara* 1,250 tons ; *Brazil* 2,000 tons ; *Italia* 2,000 tons ; *Pernambuco* 1,500 tons ; *Cananea* 1,000 tons ; *Ubatuba* 1,000 tons ; *Serido* 700 tons ; *Coronel* 350 tons, and *Ailda* 500 tons.

Besides these companies, there are also the following : *Lloyd Transatlantico Brasiliero*, and *Empreza de Navageçao Hoepeck*.

NOTE.—The steamers on river and coastal services use wood fuel and also — particularly the Brazilian Lloyd (on all its lines) — Brazilian coal mixed with foreign coal.

Foreign Companies.

As regards foreign companies we shall merely draw up a list according to nationality :—

American companies :

American Hawaiian Steamship Company.
United States Shipping Board.
Standard Oil Co.
Crowel and Thurlow Steamship Co.
A. H. Bull Steamship & Co.
The Texas Co.
Munson Steamship Line.
Pan-American Petroleum & Transport Co.
Anglo-American Oil Co., Ltd.

Argentine companies :

Sociedad Anonima de Navigacion Sud Atlantica.
Marina Mercante Argentina.
Argentine Navigation Co. Ltd. (Nicolas Mihanovich).
M. R. Podesta.
C. N. Santiago Laimbruschini.

Belgian companies :

Lloyd Royal Belge.

Danish companies :

Det Forened Damskibs Selskab.
P. Brown Jnr. & Co.
C. H. Hansen.

French companies :

Société Générale des Transports Maritimes à Vapeur.
Compagnie Française de Navigation à Vapeur Chargeurs Réunis.
Compagnie de Navigation Sud-Atlantique.

Spanish companies :

S. C. Pinillos, Izquierdo & Compania.
Compania Transatlantica.

Dutch companies :

Koninklijke Hollandsche Lloyd.
Koninklijke Nederlandsche Stoomboot.

British companies:

Royal Mail Steam Packet Company.
Pacific Steam Navigation Co.
Prince Line Ltd.
Lamport & Holt Ltd.
Harrison Line.
Booth Steamship Co. Ltd.
Hugh & William Nelson Ltd.
Eagle Oil Transport Co. Ltd.
Furness Withy & Co. Ltd.
Bay S. S. Co. Ltd.
Edward Hain & Son.
Rankin & Gilmour Co. Ltd.

Italian companies:

Navigazione Generale Italiana.
Sociéta di Navigazione Lloyd Italiano.
Lloyd Sabaudo (Sociéta Anonima).
Sociéta di Navigazione Transatlantica Italiana.
Lloyd del Pacifico.
Soc. Nazionale di Navigazione G. Ansaldo & Ci.
Soc. Anonima di Navigazione Cosulich.
La Veloce Navigazione Italiana.

Japanese companies:

Nippon Yusen Kabushiki Kaisha.
Osaka Shesen Kabushiki Kaisha.

Norwegian companies:

Wilh. Wilhelmsen.
Wilhelm Terkildsen.
Det Nordenfjelske Dampskibsselskab.
Jacob R. Olsen.
Det Bergenske Dampskibsselskab.

Swedish companies:

Axel Axelson Johnsson.
Rederiaktiebolag Svenska Lloyd.
G. Carlsson.

As we pointed out at the beginning of this statement, there is a great deal of information which we are unable to supply in a complete form, owing to the inadequacy of statistics regarding Brazilian navigation and the very short time which we have had at our disposal.

Moreover, it should be observed that navigation statistics, both in Brazil and elsewhere, are not yet compiled on a scale proportionate to the requirements of the modern transport industry. There are, it is true, in Brazil official departments whose duty it is to collect the necessary information on this subject. Thanks to the efforts of the General Inspection of Navigation (Inspecteria General de Navegaçao), the Directorate of Commercial Statistics (Directeria de Estatistica Commercial), and of the Finance Ministry, a large number of documents are available on the various questions affecting national navigation. But we are fully aware of the necessity of improving this service.

For this purpose it would be advisable to establish an international body which, as a result of its position, would be able to gain a general impression of the needs of all countries taken as a whole, and would be able to institute general and uniform methods for the necessary research, to create a common system of statistics and to issue instructions which would guide the national services. We shall undoubtedly have such a body in the near future when the Advisory and Technical Commission of Communications and Transit comes into being.

And now, to complete this review, we must give a survey of our great modern ports.

ANNEX I.

Arrivals of Steamships and Sailing Vessels according to Flag, including repeated Arrivals. Ocean and Coasting Lines.
(January to June.)

FLAG.	NUMBER.					NET TONNAGE.				
	1916	1917	1918	1919	1920	1916	1917	1918	1919	1920
German	—	—	—	—	16	—	—	—	—	45,514
American	149	126	99	225	320	402,750	346,943	147,338	430,316	961,873
Argentine	348	278	281	340	342	160,698	98,283	59,064	76,354	88,047
Belgian	4	—	1	6	56	7,396	—	1,222	13,841	156,856
Bolivian	—	1	17	—	—	—	162	2,190	—	—
Chilian	1	—	2	12	6	1,653	—	4,779	6,960	6,153
Cuban	—	—	—	1	1	—	—	—	1,177	1,309
Danish	32	29	53	24	17	43,043	49,829	95,959	46,060	38,493
Finnish	—	—	—	1	—	—	—	—	628	—
French	125	105	82	101	204	446,773	381,978	288,399	332,416	781 853
Greek	19	16	11	—	19	38,667	21,482	22,089	—	48,411
Spanish	41	37	15	28	13	122,157	98,747	32,080	50,069	26,365
Dutch	120	29	3	39	116	485,319	105,545	7,392	196,473	424,076
British	639	416	420	457	1.001	2,089,214	1.301,163	1,267,800	1,458,561	3,300,102
Italian	96	51	60	51	164	272,730	144,706	184,869	179,821	538,475
Japanese	2	8	13	26	40	4,849	26,190	51,073	100,784	146,667
Mexican	—	1	—	—	—	—	3,236	—	—	-
Norwegian	94	143	118	125	132	164,496	268,619	208,452	222,982	311,900
Paraguayan	72	50	153	15	5	15,346	17,790	52,997	2,630	320
Peruvian	4	8	—	9	4	512	431	—	4,828	911
Portuguese	5	4	7	3	17	1,142	1,250	5,841	634	6,453
Roumanian	—	—	—	—	1	—	—	—	—	2,408
Russian	12	3	1	1	5	3,173	2,402	1,682	3,398	14,627
Swedish	45	35	32	40	47	106,511	77,418	47,077	95,813	114,289
Uruguayan	36	37	38	45	35	20,304	8,894	7,235	12, 370	10,714
Total Foreign	1,844	1,377	1,406	1,549	2,561	4,386,733	2,955,068	2,427,556	3,236,055	7,085,815
Total Brazilian	9,145	8,855	9,897	9,792	10,042	4,358,907	4,134,666	5,130,556	4,697,598	4,837,463
Grand Total	10,989	10,232	11,303	11,341	12,603	8,745,640	7,089,734	7,558,112	7,933,653	11,923,278

Annex II.

Departures of Steamships and Sailing Vessels according to Flag, including repeated Arrivals. Ocean and Coasting Lines.
(January to June.)

Flag.	Number.					Net Tonnage.				
	1916	1917	1918	1919	1920	1916	1917	1918	1919	1920
German	—	—	—	—	16	—	—	—	—	45,514
American	146	124	102	224	329	387,317	332,430	156,278	415,047	949.805
Argentine	350	280	280	341	352	161,319	100,408	58,447	75,870	94,440
Belgian	4	—	1	4	55	7,306	—	1,222	8,894	155,013
Bolivian	—	1	17	—	—	—	162	2,190	—	—
Chilian	1	1	2	13	6	1,653	1,640	4,797	8,137	6,149
Cuban	—	1	—	1	1		1,368	—	1,777	1,309
Danish	33	33	53	25	16	43,204	51,549	98,339	45,286	37,304
French	125	106	81	105	202	446,773	381,984	226,412	328,205	772,017
Greek	18	17	10	—	19	36,642	24,152	20,503	—	48,413
Spanish	42	38	14	28	13	125,824	100,079	29,359	51,284	26,365
Dutch	121	30	2	39	115	448,284	100,073	5,105	196,473	339,749
British	648	421	415	459	1,005	2,094,281	1,310,460	1,249,975	1,441,169	3,366,878
Italian	97	52	61	52	163	272,782	147,536	188,555	181,687	536,496
Japanese	2	8	13	23	39	4,849	26,190	51,073	89,379	145,878
Mexican	—	1	—	—	—		3,236	—	—	—
Norwegian	102	140	117	118	133	173,454	263,796	205,061	209,162	313,442
Paraguayan	72	50	153	15	5	15,346	17,700	52,997	2,630	320
Peruvian	4	8	—	9	4	512	431	—	4,828	911
Portuguese	6	6	6	3	17	1,268	1,954	10,071	634	6,244
Roumanian	—	—	—	—	2	—	—	—	—	4,801
Russian	12	3	—	1	4	3,173	2,402	—	3,398	12,234
Swedish	45	32	30	41	47	104,006	72,946	45,144	97,154	113,018
Uruguayan	36	37	38	45	32	20,304	8,894	6,621	12,450	8,405
Total Foreign	1,864	1,389	1,395	1,546	2,575	4,388,787	2,958,480	2,412,149	3,172,862	6,984,705
Total Brazilian	9,208	8,792	9,917	9,722	10,083	4,373,009	4,121,421	5,171,404	4,682,901	4,801,772
Grand Total	11,072	10,181	11,312	11,268	12,658	8,761,796	7,079,901	7,583,553	7,855,763	11,786,477

Annex III.

Table of Distances:

(Distances in miles)

Lines.	Distances between ports.	Distances from first port.
I. — North-South Line.		
Rio	0	0
Santos	210	210
Paranagua	170	380
Sao-Francisco	65	445
Rio Grande	445	890
Montevideo	310	1,200
Buenos-Ayres	120	1,320
Montevideo	120	1,440
Rio Grande	310	1,750
Santos	640	2,390
Rio	210	2,600
Bahia	720	3,320
Maceió	270	3,590
Recife	120	3,710
Ceara	405	4,115
Belem	575	4,690
II. — Northern Line.		
Rio	0	0
Victoria	265	265
Bahia	475	740
Maceió	270	1,010
Recife	120	1,130
Cabedello	72	1,202
Natal	80	1,282
Fortaleza	70	1 552
Tutoya	250	1,802
Sao-Luiz	160	1,962
Belem	360	2,322
Santarem	517	2,839
Obidos	68	2,907
Parintins	95	3,002

ANNEX III (continued).

Table of Distances:

(Distances in miles).

Lines.	Distances between ports.	Distances from first port.
Itacoatiara	137	3,139
Manaos	110	3,249
III. — Southern Line.		
Rio	0	0
Santos	210	210
Paranagua	170	380
Antonina	12	392
Paranagua	12	404
Sao-Francisco	65	409
Itajahy	60	529
Florianopolis	45	574
Rio Grande	360	934
Montevideo	310	1,244
IV. — American Line.		
Santos	0	0
Rio	210	210
Bahia	720	930
Recife	390	1,320
Para	1,140	2,460
S. J. Porto Rico	1,800	4,260
New York	1,407	5,667
V. — Amarraçao Line.		
Rio	0	0
Victoria	265	265
Bahia	475	740
Maceió	270	1,010
Recife	120	1,130
Cabedello	72	1,202
Natal	80	1,282
Macau	150	1,432

ANNEX III (continued).

Table of Distances:

(Distances in miles.)

Lines.	Distances between ports.	Distances from first port.
Mossoro	40	1,472
Aracaty	56	1,528
Fortaleza	67	1,595
Acarahy	120	1,715
Camocim	50	1,765
Amarraçao	55	1,820
Parahyba	10	1,830
Amarraçao	10	1,840
Tutoya	55	1,895
Maranhao	150	2,045
VI. — Sergipe Line.		
Rio	0	0
Cabo Frio	75	75
Victoria	200	275
Caravellas	190	465
Ponta d'Areia	3	468
Ilheos	185	653
Bahia	115	768
Aracaju	165	933
Villa Nova	65	998
Penedo	3	1,001
Maceio	80	1,081
VII. — Laguna Line.		
Rio	0	0
C. Dois Rios	65	65
Santos	150	215
Cananea	125	340
Iguape	35	375
Cananea	35	410
Paranagua	55	465
S. Francisco	65	530

ANNEX III (continued).

Table of Distances:

(Distances in miles.)

Lines	Distances between ports.	Distances from first port.
Itajahy	60	590
Florianopolis	45	634
Laguna	60	695
VIII. — Guaratuba Line.		
Rio	0	0
Angras dos Reis	70	70
Paraty	25	95
Ubatuba	48	143
Caraguatuba	30	173
Villa Bella	10	183
S. Sebastiao	4	187
Santos	65	252
Canenea	125	377
Iguape	35	412
Cananea	35	447
Paranagua	35	482
Guaratuba	50	532
IX. — Lagune Mirim Line.		
Rio Grande	0	0
Pelotas	27	27
Jaguarao	86	113
Santa Victoria	72	185
X. — Lagune des Patos Line.		
Rio Grande	0	0
Pelotas	27	27
Porto Alegre	150	177
XI. — Matto Grosso Line.		
Montevideo	0	0
Humayta	638	638

ANNEX III (continued).

Table of Distances:

(Distances in miles.)

Lines.	Distances between ports.	Distances from first port.
Asumcion	154	792
Apa	351	1,143
Porto Martinho	33	1,176
Porto Coimbra	149	1,325
Porto Esperança	33	1,358
Corumbà	83	1,441
Cuyaba	200	1,641
XII. — Various Lines.		
Rio	0	0
Buenos Ayres	1,320	1,320
Bahia Blanca	580	1,908
Rio	0	0
Buenos Ayres	1,320	1,320
San Nicolas	185	1,505
Rio	0	0
Buenos Ayres	1,320	1,320
Rosario	218	1,538

D.—PRINCIPAL PORTS.

Port of Manaos.—This port, which is situated on the left bank of the Rio Negro, at about 14 km. from the point at which it joins the Amazon, is subject to alternate periods of six months high water and six months low-water, the flood period being generally from December to May, the low-water period from June to November. During the first period the Rio Negro is at about street-level along the quay, so that ships can lie alongside for unloading, whereas during the low period the shore is completely dry from the base of the quays to water-level a distance of 100 to 150 metres. The difference in water level between these two periods is 15 metres, sometimes even more.

It is easy to understand, bearing in mind the peculiar conditions existing at Manaos, how necessary it was to improve the port, so as to enable steamers of deep draught making use of this important commercial centre to load and unload in any sort of weather.

Provisional works were carried out with the necessary speed, and followed later by improvements of a more permanent nature.

The temporary works comprised:

A wooden landing stage 110 metres long by 70 metres wide on piles of tarred pinewood, cross-section 0 m. 25 by 0 m. 25; parallel to this landing stage, and at a distance of 100 m., a floating pontoon measuring 103 m. 60 by 20 m. 50, provided with three metal towers. These three towers are 23 metres in height and correspond to three similar towers on the landing stage, and are used for overhead carriage from the pontoon to the warehouses. Three electric motors, of the Westinghouse railway type, are mounted on these three towers, each with a drum for winding cable. They are each of 75 h.p., 220 volts direct current.

This interesting solution of the problem of loading and unloading goods in a port like Manaos, which is subject to such differences of water-level, was devised by engineer, A. de Lavandeyra, who was also responsible for the other plans for development of this port.

The permanent works which were carried out by the *Manaos Harbour Limited*, contractors for the improvement and operation of the port, are briefly as follows:

A large floating pontoon; a landing-stage for different water-levels, a quay wall; an embankment between the quay and the shore; a series of warehouses for receiving, storing and distributing all goods loaded and unloaded at Manaos; a building for the customs, and a large floating dock; a building for repair workshops and an electric power station.

All the warehouses, floating pontoons and quays are lighted by electricity, and have telephones and fire alarms. As a precaution against fire, there is a large reservoir always full, directly connected with the mains leading to the different warehouses and buildings of the company.

For transport, both inside and outside the warehouses, there is an improved system of electric tractors.

* * *

Port of Para.—This port, which is named after the most northerly State in the Brazilian Federation, is situated at the mouth of the Amazon. This means that it is the natural outlet for the vast region which forms about a third of the South American Continent, and which is intersected by the Amazon's remarkable network of navigable tributaries. It is 738 marine miles from Oyapock, the most northerly point on the Brazilian seaboard.

The contract for improving and operating the port has been assigned by the Government to the Para Harbour Company.

The works carried out by this company are mainly as follows :

1. 5 km. of entrance channel, dredged to a depth of 9 m. 25, providing access to the wharves. This channel is equipped with light buoys which enable it to be used even at night.

2. 1,943 metres of wharves—1,260 metres for sea-going vessels, 226 for river vessels, and 457 metres forming a special dock for ships of shallow draught. The company in addition makes use of an old wharf of small depth 360 metres in length and of the old dock of Vero Pezo, also very shallow.

3. 34 hectares of ground reclaimed from the sea behind the new wharves, on which stand :

Thirteen ordinary warehouses of a total available area of 26,000 sq. metres.

Two two-storied warehouses of a total available area of 9,600 sq. metres.

The wharves and warehouses are equipped with electric cranes.

4. A rampart 1,850 metres in length and 30 metres wide.

5. An electric power-station.

6. Outside the port, at a short distance downstream, on some land called " Val-de-Caes ", which belongs to the company, works have been installed for the repair of ships, comprising :

Two floating docks of a capacity of 1,800 tons each for the upkeep and repair of vessels ; three dry docks for river craft, capacity 800 tons each ; a large repair workship including foundry, flatting mill, forge, etc.

A special wharf is reserved for these buildings.

7. A depot for inflammable materials, built on the property known as " Miramar ", adjoining Val-de-Caes, and also belonging to the company. This depot includes a landing stage built on metal piles of a depth of about 10 metres.

8. A coal depot with movable hoppers on the wharf reserved for sea-going ships.

9. A submerged dyke on the western side of the entrance channel for diverting the tidal current in order to keep a uniform depth in the channel.

10. Three mazout reservoirs on the "Miramar" property holding 24,000 tons of mazout; the foundations are laid and the preliminary work finished; the reservoirs themselves are being erected.

11. The construction of building for the customs, postal and telegraphic services is for the time being postponed.

* * *

Port of Pernambuco.—This recently constructed port is situated in the State of the same name, in the most eastern part of South America. Before being equipped with the technical appliances which improved it, it was, as a natural port, sheltered behind a line of rocks which rises at about 300 metres from the coast. It was much used in cruises from Europe to America and *vice versa*, or between Northern and Southern Brazil. But in order to adapt it to modern navigation, it was essential to improve nature's work by adding the complete equipment needed in a port suited for a large amount of traffic. With this object, the Federal Government has had these improvements carried out, under contract, by the Pernambuco Harbour Construction Company, along the lines proposed by a commission of Brazilian engineers presided over by M. Alfredo Lisboa.

a) *Protective Works.—Nogueira Dyke.*—This dyke closed the southern extremity of the harbour. Starting from the coast, it forms a link with the line of reefs. It is a wall of rough stones, 1,200 metres long. The platform stands 4 metres above water and has a width of 3 metres.

Wall on the reefs.—This wall is 3,000 metres long, and is built on the natural reef which formed the shelter of the original harbour. Its platform is 3 m. 50 wide and is surmounted by a protecture parapet on the sea side 2 metres in height.

Breakwaters.—At the end of the wall and prolonging it is a breakwater 1,147 metres in length. It is built of rough blocks varying in weight from 100 to 10,000 kilogrammes. On this rough wall there is a platform 10 metres wide built of artificial blocks of 35 tons and surmounted on the side next the sea, like the wall, by a parapet 2 metres high, serving as shelter against breakers.

Pier of Olinda.—At about 300 metres from the end of the breakwater is the extreme point of Olinda Pier, which starts from the isthmus of the same name. This pier is built entirely of rough blocks. Its top is 4 metres above low water, and it is 800 metres long. It protects the port against the north-east winds.

b) *Entrance Channel to the wharves.*—Between the head of the Olinda Pier and the end of the breakwater is the entrance to the harbour, 300 metres wide and 10 metres deep. The channel, which starts here, is dredged to a depth of 9 to 10 metres in the outer harbour and near the docks, and the rest of it to a depth of 8 metres.

c) *Wharves.*—The wharves are composed of artificial blocks laid in courses, the first course resting on a foundation of rough stone 2 metres thick. There are four courses in the 8-metre wharves, and 5 in the 10-metre wharves. On the last course, 1 m. 28 in height, rests the masonry portion of the wharves. The masonry portion is built up to 4 metres above high-water mark. On the top, capstans are set in at 30 metres intervals, and ladders are set into the side of the wharves at 60 metres interval, for the use of boats and launches.

Other wharves have been constructed, some of 4 m. 50, and others 2 m. 50 in depth ; the former can be used by coasting vessels, the latter are rather in the nature of protective walls, although vessels can berth there as well.

Length of 10-metre wharves	956	metres
» 8-metre wharves	1,706	»
» 4.50 and 2.50	564	»

Equipment of Quays.—Warehouses are situated along the quays, covering a total area of 26,400 square metres ; also a coal depot with an area of 23,000 metres ; an electric power-station with an area of 500 square metres ; eleven 1 ½-ton cranes, three five-ton cranes, a belt carrier and three transhippers.

The coal depot is not yet completed, but work on it has been commenced. This depot, situated at the extreme end of the 10 m. wharves, close to the harbour entrance, and protected by the breakwaters, will simplify the coaling of big vessels. It is equipped with two transhipment bridges, a lift, and a coal lighter.

Railway Lines.—The port also has 9,500 metres of railway lines for handling traffic on the wharves.

* * *

Port of Bahia.—The port of Bahia, which has only recently been constructed, is situated in the bay of the same name to the south of the port of Pernambuco. The bay is well sheltered, but in order to enable the largest steamers to load and unload their cargoes directly upon the wharves, a Brazilian company was formed in 1902 known as the Bahia Docks and Port Concessionary Company, which subsequently handed over the construction of the port to the Bahia Port Construction Company. The latter consisted of French financiers and technical experts, under the direction of M. E. Quellennec.

The port, which has a total area of 100 hectares, is quadrilateral in form, two sides consisting of breakwaters and the other two of the wharves.

(a) *Protective works.*—Breakwaters.—The port is protected by two breakwaters ; one, known as the southern outer breakwater and measuring

920 metres in length, runs at right angles to the coast; the other, called the inner breakwater, runs parallel with the coast, and is 1,110 metres long.

(b) *Wharves.*—The wharves are built out into the sea for an average distance of 200 metres. They comprise:

One wharf for coasting steamers, 200 metres long at right angles to the coast.

One wharf 1,450 metres long at which, even at low tide, vessels drawing as much as 8 metres can berth.

One wharf 855 metres long suitable for the largest vessels drawing 10 metres; this wharf is connected with the coast by a dyke more than 1,000 metres long.

In order to build these wharves it was first of all necessary to build a wall in the water; when this had been done, and a kind of barrier had thus been erected, the space between the quay wall and the shore was filled up. In this way enormous stretches of land were reclaimed from the sea, and on this land have been constructed sheds, depots, warehouses, customs buildings, railway sidings, cranes, etc., all of which are indispensable for the operation of the port.

The quay wall was built by placing blocks weighing from 80/100 tons on the bottom. The inner breakwater and the most advanced part of the outer breakwater are supported on reinforced concrete caissons measuring 340 and 400 cubic metres, which were floated out and sunk in their final position.

(c) *Plant.*—In addition to the depots and cranes, the wharves are equipped with a railway with seven locomotives and 500 wagons, and also with an electric power station of 700 horse-power, and a foundry.

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* *

Port of Rio de Janeiro.—This port is situated in the bay of the same name, celebrated for its beauty. Its trade, which is constantly growing, amounted in 1902 to rather more than 1 million tons imports, and one and a half million tons exports.

The port was completed in 1911. The works carried out comprise:

1. Dredging a channel giving access to the quays, and dredging in front of the quays to a depth of from 8 to 10 metres.
2. The construction of wharves 3,355 metres in length and 8 metres in depth for 1,500 metres, and 10 metres in depth for the remainder (1,855 metres).
3. Filling in behind the wharves, and thus reclaiming 83 hectares of land for use in connection with the part.
4. The construction of 10 warehouses measuring 100 × 136 metres.
5. The installation of ten 5-ton cranes and 25 1.5-ton cranes on the wharves and of 60 movable cranes in the warehouses.

In building the quay walls the French "Hersent" system of caissons with compressed air, modified to suit local requirements, was adopted. The work was carried out under the direction of MM. Francisco Bicalho and Delvechio. The caissons were lowered and, when necessary, raised, from a floating dock consisting of two pontoons connected by a strong platform ; once the caisson was in place the wall was built between the two pontoons. The floating dock was fitted with an apparatus for producing electric power and compressed air for the caissons.

The construction of the quays was a matter of extreme difficulty owing to the great depth to which it was necessary to descend in order to find bedrock, and also owing to the unevenness of the bottom. Bedrock was found at a depth of 18 metres and in some places even of 22 metres below the surface of the water. Before reaching rock-bottom the caisson rested on sand and mud which could be permeated with air, so that at a certain depth the air escaped through the soil, and the necessary pressure could not be kept up in the work chamber. This difficulty was overcome in the following manner : three barge-loads of clay were emptied into the water against the sides of the caisson. This clay compressed the mud so that the air under pressure could no longer escape through it. The earth was then dug away from inside the work-chamber, first under the four corners of the caisson and then under its edges, so that it finally rested entirely on the rock.

On other sections of the wall the rock-bottom was so uneven that it was necessary to excavate to a depth of about one metre at one corner of the caisson and to build up for a height of two metres a support under the opposite corner.

The Walker firm succeeded, however, in overcoming all these difficulties.

The extent of the dredging and filling work is shown in the following figures :

	cubic metres.
Dredging channel and in front of wharves	7,750,000
Fill behind the wharves	6,500,000

This space was filled with three million cubic metres of sand dredged or pumped, and with two and a half million cubic metres of material from the hill " Morro do Senado ", situated in the centre of the town at a distance of 5 kilometres from the works ; this material was carried by tramway to the port.

* * *

The Port of Santos.—The Port of Santos is one of the largest centres in Brazil for import and export trade. Goods for the whole State of Sao Paulo and for parts of Minas-Geraes, Goyas, and even Matto-Grosso, are distributed from this centre. From this point also the products—including coffee—of the first-named State are despatched to foreign countries ;

also some of the products of the last two States, particularly livestock, which is killed, and the meat frozen, in the cold storage slaughter-houses of Sao Paulo.

This port is completely sheltered by the natural conformation of the coast and by the island of S. Vicente. The Brazilian Government has appointed a Commission of Enquiry. under the direction of the engineer Sergie de Saboia, to consider plans for its improvement.

Tenders were invited for carrying out this engineer's plan, and the contract was awarded, by decree of July 12, 1888, to M. J. P. de Oliveira, who organised the undertaking through Gaffréo, Guinle and Company, under the name " Melhoramentos de Porto de Santos ". In 1892 this undertaking was transformed into a limited liability company under the name " Companhia de Santos ". This company, employing exclusively Brazilian capital and experts, carried out all the work which has given Santos a completely modern harbour.

The quay-walls are of masonry and hewn stone, rising 1.50 metres above high-water level ; they are reinforced by a wall of rough stone, and this supports the embankment which connects the wharves and the shore.

The foundations of the quay walls are large blocks, and embedded in the bottom to a depth of 1 to 3 metres. The wall thus formed is 7 metres high ; its width varies from 3.80 to 5.7 metres according to the nature of the ground. The foundations rise to low-water level ; above that the wall is built of masonry to a height of 1.80 metres above high tide. It has a revetment (talus) of 1.10 metres.

In front of the wharves the port is dredged to a depth of 8 metres below low-water mark, thus allowing free access for trans-Atlantic vessels. The length of the wharves is more than five kilometres. Along the wharves a strip 20 metres wide has been provided for the movement of traffic, and another, 35 metres wide, for warehouses, stores, machinery, cranes and three lines of rail, connected with the S. Paulo railway, for handling goods. Some of the fixed and movable cranes have a lifting capacity of 6 to 20 tons, and are worked by steam ; others, with a lifting capacity of 1,500 kgm. are worked by hydraulic power. The warehouses, built of iron or masonry, measure 75 by 24 meters ; others, more recent, measure 200 by 30 metres ; all are equipped with movable cranes and with rails and turn-tables.

* * *

Port de Rio Grande do Sul.—The State of Rio Grande do Sul is the most southern of the Brazilian Federation. The principal port of this State — through which its very considerable export passes — is Rio Grande, situated on the right bank of the North Canal, which joins Lagune dos Patos (a sort of immense inland sea) to the Atlantic Ocean, and which is also connected with the neighbouring Lagune de Mirim.

The concession for works was granted by the Federal Government in September 1906 to the American engineer Almer Lawrence Corthell, who ceded it to an American company " The Port of Rio Grande do Sul Co.",

which in turn ceded it, in 1908, to the "Compagnie Française du Port de Rio Grande do Sul", established in July 1908 with a capital of Fr. 30,000,000. This company had the work carried out by the "Société Générale de Construction", a French company under the chairmanship of M. E. Quellenec.

The works in the port of Rio Grande commenced in 1909 include :—

1. *The Bar.*—The bar consists of two rock jetties, each about 4,000 m. long, starting from the Atlantic coast east and west of the mouth of the North Canal ; the cubic measurement of these jetties is well over 2,000,000 cubic metres. These two jetties canalise the channel, and a depth of about 10 m., providing free access to the port, has thus been obtained without recourse to dredging.

2. *The Port.*—a) Wharves : The port comprises a first section of 1,500 m. of wharves and another section of 1,000 m. capable of receiving boats with a draught of 10 m. and built of concrete blocks placed upon walls of rough stone.

b) Dredgings : The dredgings include : a channel (depth 19 m. 40) 130 m. wide and 2 km. in length, connecting the North Canal with the new port ; an outer harbour 400 metres long ; the main harbour 1,500 metres in extent, bordered by a rectilinear wharf of concrete blocks ; a channel (4 m. 20 in depth and about 700 m. in length) at the end of the new port and linking it up with the old port. These dredgings amounted to a total of at least 8,000,000 cubic metres of material, used in filling up an area of about 300 hectares.

c) The installations and plant comprise railways, waterducts, drains and various buildings ;

Two warehouses 100 m. by 20 m. fitted in each case with electric transporters of 1,500 kg. capacity.

A central electric power station with direct current of 500 volts for lighting and motive power, about 35 cranes and electric capstans, 2 coal transhippers, about 50 ordinary or light buoys and 3 harbour lights, 2 small lighthouses, an oil gas works, etc.

The State of Rio Grande do Sul has bought back the contract for the construction and operation from the French company of the Port of Rio Grande, of which it is at present the concessionary ; the contract was assigned in consideration of payment for the work done—*viz.*, wharves, installations and warehouses, amounting to a sum of 70,000,000 (1919).

Further, the Federal Government has taken over the Bar, compensating the same company for the actual cost of the works mentioned under that heading.

*
* *

Regime of Ports.

There are two kinds of contracts adopted for the construction and operation of Brazilian ports.

Under the first system, in accordance with the decrees of 1903 and 1907, the Government assumes responsibility for the work, which it carries out with its own resources, either through contractors or directly ; and when these are completed it hands over the operation, under short contracts in order to adapt the taxes, at intervals, to the necessities of commerce and navigation.

In fulfilment of these decrees, the ports of Rio de Janeiro and of Recife (Pernambuco) have been rented, the first in 1910 for a period expiring in 1921, and the second provisionally.

The second type of contract takes the form of concessions based on the decree of 1869. Under this arrangement the work is done by contractors and is paid for by approved taxes, on condition that after a certain period the works, installations, etc., return to the Government. This is the system adopted for the ports of Manaos, Para, Bahia, Santos and Rio Grande do Sul, as well as in that of Victoria (State of Espirito Santo), still in course of construction.

BULGARIA.

I.

RAILWAYS.

All the railways of national importance mentioned in the present notes are worked entirely by the State. The figures given are for the normal-gauge railways. Bulgaria possesses, in addition, narrow-gauge railways (60 and 75 cm. gauge) with a total length of 346 km., but these are only of local importance.

1. *Length of System.*—In 1911 the State possessed a normal-gauge railway system with total length of track of 1,931 km. In 1920 the Bulgarian railway system had a total length of track of 2,203 km.

2. *Stations and Halting-places.*

In 1911	Stations	122
	Halts	72
	Total	194
In 1920	Stations	175
	Halts	94
	Total	269

3. *Rolling-stock.*—The State was in possession of the following rolling-stock :

	In 1911	In 1920
(a) Locomotives	196	240
(b) Passenger coaches, heating vans, mail vans, guards vans, etc.	164	159
Goods wagons (covered)	2,677	1,631
Goods wagons (open)	1,809	1,500
Total wagons	4,920	3,512

4. *Present condition of Track, Rolling-stock, Repairs, etc.* The rolling-stock has greatly diminished since the recent wars; the deficiency has now been considerably augmented by the return to Serbia of such of her rolling-stock as had been held as war booty. This shortage naturally had a marked effect on the running of trains, the number of which was reduced to a minimum. As a result of the impossibility of proper supervision and upkeep during the wars, which have continued almost incessantly since 1912, the track and rolling-stock are in a deplorable condition. Owing to financial difficulties, and to the impossibility of obtaining the necessary materials, adequate measures for the supply of the needs of the maintenance, locomotive and traffic departments could not be taken immediately after the conclusion of the wars. In addition, the general strike of the personnel of the Bulgarian railways and ports which occurred in January and February 1920, added to the difficulties of the situation. Work on the most needed and urgent improvements is, however, being carried on uninterruptedly. The supply of wooden sleepers has been increased, and the repair of rolling-stock in the workshops of the State railways already shows some, though, as yet, inconsiderable, progress.

The average speed of trains is 30 km. per hour. The construction of new lines is not at present under consideration, with the exception of a few narrow-gauge lines of purely local importance, and of the normal-gauge line Mezdra-Vidine, which has now been completed and is in operation as far as Alexandrovo. The remaining portion, of about 30 km. (terminating at the port of Widdin on the Danube), the construction of which had been delayed during the wars, is expected to be completed very shortly.

5. *Distance covered by Rolling-stock.* *Note.*—For the year 1919/20 the period considered corresponds to the financial year.	1911	1919/20
(a) Locomotives: Total effective distance, km.	6,002,274	4,866,239
(b) Wagons: Passenger coaches, axle km.	53,338,104	42,647,013
Vans, axle km.	12,913,911	11,746,296
Mail vans, axle km.	7,221,833	5,979,074
Goods trucks, axle km.	90,696,732	108,291,305
Total	164,170,580	168,663,688

6. *Train circulation.*	1911	1919/20
Number of trains:		
Passenger	11,217	5,021
Mixed	9,324	16,066
Goods	17,758	18,417
Official	1,379	1,741
Total	39,678	41,245

Distance covered by trains in train km.:		
Passenger	2,471,953	1,000,853
Mixed	997,532	1,405,536
Goods	1,946,183	1,849,966
Total	5,415,668	4,256,355

Remarks.—The distance covered by the international trains (Orient Express, and Simplon Orient Express) is included in the above figures. For the year 1911 the figures for these trains are as follows:

Number of trains	394
Train kilometres	141,840
Axle kilometres	2,927,985

For the year 1919-1920 these figures cannot yet be supplied separately.

7. *Passenger, Goods and Parcel Post Traffic.*

	1911	1919/20
(a) Passengers:		
Number of persons carried	3,485,811	4,996,750
Distance in passenger km.	234,094,958	299,751,679
(b) Goods by fast and slow trains:		
Quantity carried, in tons	3,037,448	934,577
Distance covered by these quantities, ton km.	270,358,371	202,087,805
(c) Parcel and postal services:		
Quantities carried, tons	10,402	12,172
Distances covered by these quantities, ton km.	1,198,156	2,191,150

8. *Traffic Receipts.*

(a) Passengers:	levas	11,406,301	67,957,731
Goods	,,	15,651,565	68,874,691
Luggage and parcel post	,,	458,168	5,609,292
Total		27,516,034	142,441,714
(b) Other receipts	levas	158,564	339,936
Total receipts		27,674,598	142,781,650

9. *Working Expenses.*

Excess, coefficient of operations, etc.			approximately
Expenditure	levas	17,427,039	200,000,000
Excess	,,	10,247,558	
Coefficient of operations		62.97	
Income from excess over initial capital		3.56	

10. *Increase in Tariff Charges.*—These charges, both as regards passenger and goods traffic, have been increased by about 400 % as compared with those obtaining in 1915. A scheme for tariffs, which would provide more fully for present needs, is at present under consideration. In any event a fresh rise in tariff charges is expected.

11. *Fuel.*—During the financial year 1919/1920 the total consumption of coal by the railways amounted to 332,736 tons, making 0.192 kilogrammes per kilometric ton. The coal is obtained from the State mine at Pernik. The cost per ton varies according to quantity from 80-100 levas, but since January 1921 it has stood at 100-120 levas.

II.

PORTS.

(a) *Black Sea Ports.*

In 1911 the following ports existed on the Black Sea coast of Bulgaria: Kovarna, Balchik, Varna, Messemvria, Anhialo, Burgas and Sozopoll.

In 1920 on the same coast line the Bulgarian ports were as follows: Varna, Messemvria, Anhialo, Burgas, Sozopol, Vassiliko and Ahtopol.

Since the Balkan War of 1912-1913, and the world war of 1915-1918, Bulgaria has lost two important ports, Baltchik and Kovarna, both important as corn-exporting centres; whereas after the Balkan War she gained only two small ports of local importance, Vassiliko and Ahtopol.

1. *The Port of Varna,* which was constructed during the years 1895 to 1905, is enclosed by piers and sea walls and has a well-sheltered harbour of 30 hectares. The length of quay available for big ships is 700 metres; and for sailing-ships of the coastal service, 123 metres. The depth of the harbour when dredged is from 7 to 8 metres at low water, the average tides not exceeding 35 cm. The eastern portion of the harbour is deeper, reaching to 9.5 metres near the sides of the quay. Two sheds, having a total surface of 4,200 square metres, have been erected on the platform, as well as railway lines, etc. Another shed is being built. The port is supplied with floating cranes for discharging goods of great weight; one of these cranes has a capacity of 40, and the other of 10 tons.

Traffic in the Port of Varna	1921	1920
Incoming vessels, number	1,923	728
Tonnage in registered tons	1,046,327	529,040
Goods unloaded, kilogrammes	164,518,840	70,060,000
Goods loaded, kilogrammes	302,383,689	27,010,000
Total	466,902,529	97,070,000
Total passengers	52,225	20,227

2. *The Port of Burgas.*—This port, which is completely sheltered by piers and sea walls, possesses a dredged harbour with a depth of 7 m. 80 at low water and an area of about 30 hectares. The average depth of tides is 35 cm. The total length of quay available for ships of heavy tonnage is 595 metres. There is also a small quay with a length of 130 metres for sailing ships engaged in local coastal trade. There are two sheds with a total surface of 4,800 square metres on the platform, and a third is under construction. The port is equipped with railways.

Traffic in the Port of Burgas	1911	1920
Incoming vessels, number	2,164	736
Tonnage in registered tons	795,659	318,731
Goods, unloaded, kilogrammes	143,113,499	34,300,000
Goods, loaded, kilogrammes	246,145,209	27,300,000
Total	389,288,709	61,600,000
Total passengers	29,059	6,199

Total figures showing Traffic in the Bulgarian Black Sea Ports for the year 1911.

Incoming vessels, number	6,456
Tonnage in registered tons	2,163,667
Goods unloaded in tons	321,875
Goods loaded in tons	652,554
Total	974,429
Total passengers	153,379

b) *Danube Ports.*

In 1911 Bulgaria possessed the following ports on the Danube, which forms the frontier between Roumania and Bulgaria :— Silistria, Tutrakan Russe (Rustschuk), Svistov, Nikopol, Somovit, Rahovo, Lom and Widdin.

In 1920, after the Balkan War and the world war, the number of Bulgarian ports on the Danube was reduced by the cession of Silistria and Tutrakan to Roumania. Of the above ports the following have direct communication with the internal railway system of the country : Russe, Svistov, Somovit, and Lom. The port of Widin will also be connected with the railway system in the near future.

Only a few of these ports are furnished with special equipment, either complete or in course of construction. These ports are Russe, Svistov, Lom and Widin.

Traffic in the Danube Ports during the year 1911.

Incoming vessels [1], number	12,362
Tonnage in registered tons	2,787,785

[1] Vessels include steamships, sailing vessels and barges.

Goods, unloaded, in tons	237,369
» loaded, in tons	431,896
Total	669,265
Total passengers	364,653

The tonnage, in registered tons, of incoming vessels in certain Danubian ports in 1911 was as follows :—

Russe	527,900	Rahova	294,400
Somovit	289,000	Silistria	288,000
Svistov	287,000	Tutrakan	266,700
Widin	255,300	Lom	252,000
Nikopol	227,000		

Traffic in the Port of Russe (Rustchuk).

	1911	1920
Incoming vessels, number	2,162	1,010
Tonnage in registered tons	527,867	124,570
Goods, unloaded, tons	70,058	36,023
» loaded, tons	66,858	26,370
Total	136,916	62,393
Total passengers	70,272	13,388

c) *Improvements undertaken.*

The ports of Varna and Burgas were already too small for the handling of vessels and their cargoes ; plans were therefore drawn up for the enlargement of these two ports. Works for the enlargement of the port of Varna are in process of execution, but were suspended during the recent wars. The following figures will show the extent to which the wharves of the port of Varna have been utilised :—

Goods per metre of wharf	in 1911	645	tons
	» 1920	140	»
Registered tonnage of incoming vessels per metre of wharf	» 1911	1.405	r. t.
	» 1920	767	r. t.
Goods unloaded per registered ton of incoming vessels	» 1911	0.434	tons
	» 1920	0.183	»

It is proposed to prolong the wharf along the shore for 144 metres, and to construct a mole with 710 metres of quay wall. The extent to which the port of Varna will be enlarged in the future will depend on the site which is decided on for the granaries, the construction of which is also contemplated.

Similar works are proposed at the port of Burgas.

As regards the Danubian ports of Bulgaria, we are at present engaged in completing the work commenced before and during the Balkan War and the world war in order to provide the installations which are of primary necessity, particularly at Russe, Sovisto and Lom.

The loading and unloading of goods in our sea-ports is carried out by manual labour, owing to the lack of cranes and special machinery; it is also proposed to install semi-portable *(semi-portales)* cranes on the quays. The carrying out of all these schemes will depend on the financial resources of the State.

(d) *Condition of the Mercantile Marine.*

The data given below only refer to vessels of upwards of 5 tons. The Bulgarian mercantile marine in the Black Sea and the Danube includes.

	In 1911		In 1920	
	Number	Tonnage, in gross r. t.	Number	Tonnage, in gross r. t.
Sailing vessels	120	4,956	169	6,581
Steamships	16	11,617	20	10,867
Total vessels..	135	1,6573	189	17,448

The majority of these steamships belong to the Bulgarian Commercial Steam Navigation Company at Varna, *viz:* 6 steamships with a gross tonnage of 6,553 r. t. and net tonnage of 3,968 r. t.

Fuel for Navigation.—Before the world war the fuel used was coal obtained from Cardiff, Westphalia and Zonguldak (Turkey).

At present the only coal used is that obtained from the State mine at Pernik.

III.

MOTOR TRANSPORT.

Motor services organised as motor transportation companies are little developed in Bulgaria.

IV.

AIR TRANSPORT.

There is no air transport in Bulgaria. The creation of a service of this kind is under consideration.

CANADA.

I

RAILWAYS.

The railways of Canada are - with very few exceptions of very short mileage - constructed on the standard gauge of 4 ft. 8 ½ in., so that all rolling stock is interchangeable one line with another and with the railways of the United States.

* * *

Whilst in 1914 there was only one completed transcontinental line, namely, the Canadian Pacific Railway, two other transcontinental lines were under construction - the Canadian Northern and the combined Grand Trunk Pacific and National Transcontinental railways.

At the present time the Canadian Pacific remains undisturbed, whilst the other lines mentioned have been combined and now form Canadian National transcontinental system.

In addition to the main trunk lines there are various feeders, some belonging to the above-mentioned railways and some owned by other railway corporations. The total mileage in 1914 was 30,795 (of which 2,293 was double track). The total mileage in 1919 was 38,896 (of which 2,543 was double track).

Of the mileage shown in 1914, the present Canadian National Railway and the Grand Trunk Railway systems accounted for 12,622 miles, whereas the Canadian Pacific and leased lines accounted for 11,950 miles—the balance, 6,223 miles, belonging to smaller corporations scattered all over Canada, nearly all, however, having physical connection with one of the trunk lines.

Of the total mileage in 1919, the Canadian National and Grand Trunk Railway systems accounted for 19,510 miles, and the Canadian Pacific and leased lines for 13,295—the balance, 6,091 miles, belonging to various smaller corporations.

Rolling-stock.

Locomotives.	1914	1919
Passenger	1,783	1,457
Freight	3,028	3,610
Switching	636	812
Totals	5,447	5,879

Passenger Cars.	1914	1919
First class	2,167	2,172
Second class	627	618
Combination	491	396
Emigrant	466	701
Dining	204	203
Parlour	130	164
Sleeping	500	550
Baggage, express and postal	1,378	1,513
Other	39	195
Totals	6,002	6,512

Freight Cars.

	1914		1919	
	No.	Capacity	No.	Capacity
Box	146,507	4,846,425	153,520	5,255,121
Flat	26,151	814,440	24,768	817,847
Stock	7,589	221,965	9,189	272,590
Coal	15,955	630,435	18,375	772,800
Tank	496	15,625	419	14,340
Refrigerator	4,716	139,190	6,022	180,800
Other	2,676	104,830	4,965	185,797
Totals	204,190	6,772,910	217,258	7,499,295

Thus for every 1,000 miles of line there were :—

	1914	1919
Locomotives	176	150
Freight cars	6,636	5,585
Passenger cars	195	167

and all are operated with automatic couplers and train brakes.

In 1914 the average capacity of all cars was 33.2 tons; the average capacity of a box car was 33.1 tons. In 1919 the average capacity of all cars was 33.6 tons; the average capacity of a box car was 34.3 tons.

The employment of heavier units is well demonstrated in the fact that between 1914 and 1919 there is an increase of 1.2 tons in the average capacity of box cars.

II

INLAND NAVIGATION.

By Article XXVI of the Treaty of Washington (1871), the navigation of the river St. Lawrence, ascending and descending from the 45th parallel of north latitude, where it ceases to form the boundary between the two countries, from, to, and into the sea, shall forever remain free and open for the purposes of commerce to the citizens of the United States, subject to any laws and regulations of Great Britain or of the Dominion of Canada, not inconsistent with such privilege of free navigation.

By Article XXVII, the Government of Great Britain, after a consultation with the Government of Canada, agreed to grant the citizens of the United States the use of the Welland, St. Lawrence and other canals in the Dominion, and the Government of the United States granted to the subjects of Great Britain the use of the St. Clair Flats Canal on terms of equality with the inhabitants of the United States and engaged to urge upon the various State Governments the granting of the free use of several State canals connected with the navigation of the lakes or rivers traversed by, or contiguous to, the boundary line on terms of equality with the inhabitants of the United States.

The right of British subjects to the free navigation of Lake Michigan was granted by the same Treaty for a short term of years which expired but was renewed in perpetuity by the Waterways Treaty of 1911 ([1]).

In the same way all vessels of all flags having cargoes for interior ports in Canada or the United States, or proceeding to procure cargoes, may use the canals on the same terms as vessels of Great Britain or the United States.

Vessels of only those countries that accord coasting privileges to British vessels are allowed to engage in any coasting trade in Canada, that is to say that *petit cabotage* is permitted to a limited degree only.

The canals of Canada may be divided into two systems, which may be called the main line for heavy traffic and the various subsidiary canals.

The main canal system embraces the St. Lawrence River, Lake Ontario, Welland Canal (to overcome Niagara Falls), Lake Erie, Detroit River, Lake St. Clair, St. Clair River, Lake Huron, and St. Mary's River with its canal (to overcome the Long Sault rapids), and Lake Superior.

The St. Lawrence River, from the gulf to Montreal, a distance of 400 miles, has been rendered navigable for vessels drawing 30 ft. of water by dredging through 82 miles of shoaler water. At Montreal, rapids begin and extend almost to Prescott, a distance of 112 miles. These are passed by the operation of 24 locks, 270 ft. long, 45 ft. wide with a depth on the

([1]) See Annex, page 162.

sill of 14 ft., overcoming a rise of approximately 210 ft. Vessels using these canals are able to carry 90,000 bushels of grain, approximately 2,700 tons.

From Prescott to Port Dalhousie (the north or lower entrance to the Welland Canal) vessels navigate first the wide and deep St. Lawrence River for a distance of 98 miles and then emerge into Lake Ontario, which is 130 miles long between Kingston and Port Dalhousie.

At Port Dalhousie, vessels enter the Welland canal, 27 miles long, which has been constructed through the Niagara peninsula to overcome the drop of 327 ft. between lakes Erie and Ontario (Niagara Falls). The locks, 26 in number, are 45 ft. wide, 270 ft. long with 14 ft. on the sills and through the "dredged outs".

In connection with an improvement and the possibility of carrying ocean-going vessels to the head of lake Superior, the Government of Canada has undertaken the construction of a new Welland canal by enlarging part of the present one and constructing another practically paralleling the old one. The new canal will be 25 miles long with 7 lift locks, each with a raise of 46 ½, ft., 800 ft. long, 30 ft. wide and 30 ft. over the sills at extreme low water. This canal will not be in operation for two or three years.

Upon emerging from the Welland canal at Port Colborne; vessels enter lake Erie and run through it to the south end of Detroit river, a distance of 216 miles. Detroit river is 31 miles long, the channel of which has been slightly improved to a depth of 20 ft.

Upon emerging from Detroit river vessels enter and cross lake St. Clair, a distance of 19 miles, the channel having required slight improvement to make it 20 ft. deep.

River St. Clair is entered through St. Clair flats canal, a cutting made by the United States Government through the sand-bar at the south end of the St. Clair river. This canal is duplicate, one for north-bound and the other for south-bound boats. It has ample depth and width for the largest lake carriers. River St. Clair is 44 miles long and has ample water for the largest lake vessels.

Entrance to lake Huron, from river St. Clair, is by another cutting through the sand-bar at the foot of the lake where sufficient depth and width has been secured for the heavy traffic in this region.

Lake Huron between the head waters of St. Clair river and the foot of St. Mary river, is 223 miles long.

St. Mary river connects lake Huron with lake Superior and is 63 miles long. A minimum depth of 20 ft. has been secured through this river by dredging through various shallow places and building locks to overcome the rapids at Saulte Ste. Marie, where the fall is 19 ft. The canal is about one mile long, it has one lock 90 ft. long, 60 ft. wide and has about 20 ft. of water on the sill.

Vessels, if they so desire, may use any one of the four locks on the American side of the river, the largest two of which are 252 ft. long, 80 ft. wide with a least depth of 24 ½ ft. on the sill.

On emerging from St. Mary river, vessels enter lake Superior, and after a voyage of 250 miles reach Port Arthur or Fort William at the Canadian head of the lake.

Subsidiary Canals.

Ottawa River Canals.—These canals connect lake St. Louis on the St. Lawrence with the city of Ottawa. Combined, they are 96 miles long and have eight locks of a minimum size of 200 ft. long, 45 ft. wide, with a depth of 9 ft. over the sill. The total lockage is 63 ft.

Rideau and Cataraqui Rivers.—These rivers connect the Ottawa river, at Ottawa, with the St. Lawrence river, at Kingston. The canal is 126 miles long, has 33 locks ascending from Ottawa to the submit level and 14 descending. The total lockage is 457 ft. (that is to say, 292 ascending and 165 descending). The minimum size of the locks is 134 ft. long, 33 ft. wide, with 5 ft. over the sills.

There is a small tributary canal connecting Rideau lake with the town of Perth, a distance of 7 miles. In it are two locks making a total rise of 26 ft., 134 ft. long, 33 ft. wide and with 5 ½ ft. of water over the sills.

Richelieu River.—This river has been improved to permit of navigation between the St. Lawrence river, at Sorel, and lake Champlain, at the boundary line. It is 81 miles long, has 10 locks giving a rise of 79 ft. with a minimum depth of 6 ½ ft. on the sills, the smallest lock being 22 ½ ft. wide, 118 ft. long.

Trent Canal.—This canal connects the bay of Quinte, in lake Ontario, with Matchedash bay in Georgian bay (lake Huron). The canal is not quite completed. It will be about 275 miles long, have 41 locks in it, the minimum size being 33 ft. wide and 134 ft. long with a minimum depth of 6 ft. on the sills. Whilst this canal is not yet open for through traffic much, of it is open for local.

There are various small canals throughout the country that connect waters of the same level, that is to say, cutting through a narrow isthmus to avoid long detours. One of these is in lake Ontario, called the Murray canal; it is 5 miles long, 80 ft. wide, 11 ft. deep and has no locks. Another is the St. Peter's canal in Cape Breton island; it is ½ mile long, 55 ft. wide, has one tidal lock 48 ft. wide, 300 ft. long with 18 ft. depth in it. It connects St. Peter's bay on the southern side of Cape Breton with Bras D'Or lakes, and crosses the isthmus ½ mile in width giving access from the Atlantic to the lakes.

In the main system the Soulanges canal supersedes the old Beauharnois canal, which is now being used for power purposes and is no longer available for navigation.

Ottawa & Georgian Bay Ship Canal.—A survey and estimate has been made for the construction of a ship canal to extend from Montreal to Georgian bay *via* the Ottawa river, Mattawa river, lake Nipissing and French river, but work on this has not been started. Large sections of the Ottawa river and lake Nipissing can be navigated at the present time, but owing to the lack of locks vessels cannot get from one reach to another.

In addition to the canal systems in Canada, many rivers and lakes are navigable, but only for short distances; for example, the Saguenay river from St. Lawrence north to lake St. John, a distance of 110 miles. All the other rivers emptying into the St. Lawrence river are for shallow-draft boats only, and on them is very little navigation. In the western prairies there are the Saskatchewan, Nelson and Red rivers, draining into Hudson bay, and all navigable for small boats. The great Mackenzie river is open for a few months every year and vessels can proceed for many miles north to the Arctic Ocean. In British Columbia there are many lakes and rivers on which numerous vessels ply, particularly in those districts where, owing to the configuration of the country, railways have not been built, but none of these routes is of any great length. They are the Columbia, Kootenay, Fraser, Skeena, Thompson and a few others.

III

MERCANTILE MARINE.

Position with regard to transport.

The Canadian Merchant Marine, as a factor in the transport of passengers and freight in Canada, may be divided into five districts which at the present time are operated with very little overlapping or intercommunication, namely :—

Traffic on the Atlantic coast.
Traffic on the Great Lakes.
Traffic between the lakes and the sea.
Traffic on the Pacific coast.
Traffic on the inland waters scattered throughout the country.

Those vessels trading on the Atlantic seldom go beyond. Those on the Great Lakes are generally confined to fresh water either because they are too large to pass through the Welland and St. Lawrence canals or their engines are not equipped for use on salt water. There are a few boats whose size permits them operating through the canals and whose engines are equipped for use both on salt or fresh water.

Vessels on the Pacific Ocean for the most part trade there without having much intercourse with the east, and those on the inland waters are confined to small districts out of which they cannot pass.

The following tables show the sizes and numbers of vessels in the two years 1914 and 1920 in these various districts :—

	Gross Tonnage.	
	1914	1920
Atlantic	123,674	284,361
Great Lakes	315,417	367,742
Lakes and Sea	70,395	68,665
Pacific	86,363	138,520
Minor	53,920	51,366
Totals...	649,769	910,654

Tonnage	Atlantic		Great Lakes		Lakes & Sea		Pacific		Minor		Totals	
	1914	1920	1914	1920	1914	1920	1914	1920	1914	1920	1914	1920
100 to 1,000	109	112	241	233	68	78	112	103	165	144	695	670
1,000 to 2,000	14	23	55	59	18	20	10	24	1	7	98	133
2,000 to 3,000	7	24	19	26	5	7	4	1			35	58
3,000 to 4,000	3	12	12	13			1	4			16	29
4,000 to 5,000		4	2	4			4	3			6	11
5,000 to 6,000		8	2	4				3			2	15
6,000 to 7,000			3	4				1			3	5
7,000 to 8 000		1	2	2							2	3
8,000 to 9,000			1	1							1	1
9,000 to 10,000		1										1
10,000 to 11,000		1										1
11,000 to 12,000	2										2	
16,000 to 17,000								2				2
TOTALS, . .	135	186	337	346	91	105	131	141	166	151	860	929

Annex to Chapter II.

(Inland Navigation.)

International Joint Commission.

In 1911 the Governments of Great Britain and the United States entered into a treaty "for the purpose of preventing disputes regarding the use of boundary waters (between the two countries) and to settle all questions now pending between the United States and the Dominion of Canada involving the rights, obligations or interests of either in relation to the other or to the inhabitants of the other, along their common frontier and to make provision for the adjustment and settlement of all such questions as may hereafter arise."

The Treaty is composed of 14 articles with a protocol and a preliminary article. It enters minutely into the method of procedure to be adopted with regard to the investigation of various disputes that may arise.

For the purpose of carrying out the treaty, an International Joint Commission has been appointed composed of three members from the United States and three members from Canada.

The preliminary article defines boundary waters.

Article I is an agreement that the navigation on all navigable boundary waters shall for ever continue free and open to the inhabitants of both countries, and the waters of Lake Michigan are opened to citizens of Great Britain on an equality with those of the United States. Either country may adopt rules and regulations governing the use of canals within its own territory and may charge tolls for the use thereof, but all such rules and regulations and all tolls charged shall apply equally to both countries.

Article II.—Each country reserves to itself the exclusive jurisdiction and control over the use and diversion of all waters on its own side of the line, but should any interference with or diversion from the natural channel of such waters result in any injury on the other side, the citizens of each country may go into the courts of the other country and claim damages.

Article III.—Each country agrees that there shall be no further uses or obstructions or diversions of the boundary waters on either side of the boundary line except by authority of the aforesaid International Joint Commission.

Article IV.—Each of the contracting parties agrees not to place any works in streams crossing the boundary line at a lower level than the boundary line, the effect of which might be to raise the natural level on the other side of the boundary line, unless these works are approved by

the International Joint Commission. In the same article both countries agree not to pollute any of the boundary waters.

Article V limits the amount of the diversion at Niagara Falls for power purposes by each country.

Article VI refers to a diversion of water in the St. Mary and Milk rivers (on the eastern slope of the Rocky mountains) for irrigation purposes.

Article IX. —It is agreed that the International Joint Commission may be called upon by either or both countries to investigate and report and make recommendations on any questions arising along the common frontier between the United States and the Dominion of Canada.

Article X.—It is agreed that the Commission may be called upon to investigate and report on any question of disagreement that may arise between the two countries. If in this case the Commission is equally divided, the matter may be referred to an umpire to be chosen in accordance with the Hague Convention and this umpire shall have power to render a final decision.

Articles XI and XII refer to the working of the Commission.

Article XIII defines special agreements.

Article XIV relates to the ratification of the Treaty.

The protocol relates to the division of water in St. Mary's Rapids in St. Mary's River.

The Commission met for organization on January 12, 1912, and has settled many disputes since to the satisfaction of the citizens of both countries. It has also reported on various problems relating to the use of the boundary waters in a manner, it is safe to say, that could not have been performed otherwise. The Commission is highly respected on both sides of the boundary line, and it is felt throughout the continent that its creation was a decided advance in international intercourse.

CHILE.

I.

INTERNATIONAL CONVENTIONS.

On October 17, 1887, Chile concluded with the Argentine Republic a Convention regarding the railway service across the Andes, and on August 16, 1912, another Convention with Bolivia regarding transit and communications.

No difficulty has arisen in the application of these Conventions, and it is under their auspices, under a system of perfect freedom, that commerce is developing between the peoples of the extreme south of the American continent.

The Chilian Government desires to maintain these two Conventions in full force.

II.

RAILWAYS.

Chile, which possesses a greater number of international railways than any other American State, has constructed at her own expense the railway which unites the Port of Arica with La Paz, the capital of Bolivia.

Chilian capital has also been employed on the construction of the railway which, starting from Antofagasta, traverses the whole southern part of Bolivia and goes as far as La Paz. There is also the railway which connects the town of Santiago and the port of Valparaiso with the Argentine Republic. The Trans-Andan railways, running *via* Antuce and *via* San Martin, are also in course of construction. Several other routes of communication with the Argentine Republic are under consideration.

The national railways include, in the first place, the longitudinal railway which traverses the territory of the Republic from north to south, and which is operated from the port of Iquique, in the northern zone, as far as Puerto-Monte on Lake Llanquihue in the southern zone.

This line is connected by various branches with the coast ports and the Cordillera.

A new longitudinal line is now constructed which traverses the valleys of the coastal Cordillera.

There are numerous private railways—especially in the northern zone—used for the transportation of saltpetre and of the mineral wealth of this region.

The statistics of the year 1918 show that Chile possesses a total of 9,000 kilometres of railway, of which 5,000 belong to the State and 4,000 to private companies.

The Government has also in course of construction, or under consideration, about 10,000 kilometres of railway, which are intended to complete the railway system of the Republic.

The capital invested by the State in railways amounts to 500,000,000 gold francs, and the capital invested in private companies to 200,000,000, making a grand total of 700,000,000:

The receipts of the State railways amounted in 1918 to 76,000,000 gold francs, and those of private railways to 47,000,000, making a grand total of 123,000,000 gold francs. The traffic statistics showed 27,000,000 passengers and 16,000,000 tons of goods carried.

The Government has just obtained a loan of 25,000,000 dollars from the United States in order to purchase plant and to extend the railway service. It proposes to contract a new loan of 12,000,000 dollars, to be spent on new constructions.

The local or urban railways in Chile have a length of 500 kilometres, and represent a capital of 55,000,000 gold francs.

Haulage is, generally speaking, carried out by means of coal obtained from the mines of the country.

III.

MARITIME NAVIGATION.

The Chilian Government has completed works for the improvement of the ports of Talcahuano and San Antonio, and the works on the port of Valparaiso will be completed very shortly. A comprehensive scheme of harbour works for the whole country is under consideration. This scheme was submitted to the National Congress by M. Rivas-Vicuna when Finance Minister. The works at the port of Antafagasta, intended to facilitate the export of saltpetre and the trade with Bolivia, are already being carried out. Under the same scheme there are plans for improving the ports of Arica and Iquique in the northern zone ; of Constitucion and Llico in the central zone ; of Levu in the coal district ; and of Puerto-Saavedra and of Valdivia in the southern district.

In 1918 (excluding small craft) 6,000 vessels with a tonnage of more than 15,000,000 tons entered or left the ports of the Republic.

Maritime commerce suffered considerably during the European War owing to lack of vessels and as a result of difficulties in respect of the fuel supply, but the situation is rapidly becoming normal.

IV.

OTHER MEANS OF TRANSPORT.

A few years ago motor transport services were started. They were interrupted owing to the war, but are now being actively resumed in the central part of the country.

Air navigation has not yet been established as a system of transport, but the postal service makes use of it in some places, and this enables tests to be carried out with a view to a wider organisation of the service.

In the southern part of the country, the rivers are utilised in connection with the exploitation of forests, to carry the timber as far as the ports, where it is shipped for exportation.

CHINA.

I.

RAILWAYS.

(Financial Year 1918.)

TABLES.

I. — Lines in operation.
II. — Lines under construction.
III. — Lines authorised and lines planned.

Chinese State Railways.

IV. — Locomotives.
V. — Rolling stock (passenger).
VI. — Rolling stock (goods).
VII. — Amount of capital.
VIII. — Total number of kilometres covered by the trains.
IX. — Number of passengers.
X. — Tons of merchandise.
XI. — Consumption of fuel.
XII. — Receipts.
XIII. — Expenditure.
XIV. — Expenditure per kilometre; Coefficient of operation.

TABLE I.

Lines in Operation.

A. *Chinese State.*

Lines (including branch-lines).	Kilometres.
1. Peking-Hankow	1,314
2. Peking-Mukden	975
3. Tientsin-Pukow	1,107
4. Shanghai-Nanking	328
5. Shanghai-Hanchow-Ningpo	287
6. Peking-Suiyuan	495
7. Cheng-Tai	245
8. Taokow-Shinghua	153
9. Kaifeng-Honan	185
10. Kirin-Changchun	130
11. Chuchow-Pinschsiang	91
12. Canton-Kowloon	144
13. Canton-Samshui	49
14. Changchow-Amoy	28
Total..	5,529

B. *Lines under Construction by the Chinese State, and in partial Operation.*

Lines.	Kilometres in partial operation.
15. Lung-Hai	277
16. Hupeh-Hunan	476
17. Ssu-Tsen	88
Total..	841

C. *Provincial and Private Lines.*

Lines.	Kilometres.
18. Kwangtung	225
19. Kinkiang-Nanchang	129
20. Sunning	109
21. Swatow-Chaochowfu	42
22. Town of Nanking	11
23. Chinh-Hsing Mines	43
24. Tayeh Mines	30
25. Ching-Esing Mines	15
26. Kailan Mines	16
27. Taiyaokow Mines	34
28. Town of Tsitsikar	29
Total	683

D. *Lines Authorised.*

Lines.	Kilometres in operation.
29. Chinese Eastern	1,722
30. South-Manchurian	1,750
31. Shantung	493
32. Yunnan	465
33. Canton-Kowloon (British Section on the Hong-Kong territory)	35
Total	3,865

Summary of Lines in Operation.

A.	5,529	kilometres.
B.	841	,,
C.	683	,,
D.	3,865	,,
Total	10,978	kilometres.

TABLE II.

Lines under Construction.

	Names of lines	Kilometres
40	Szepingkai-Chengkiatung	84
41	Kaiyuan-Hailungcheng	176
42	Fengchen-Paotowchen	351
	Lung-Hai.	
43	Lanchow-Sian	660
	Lan-Tungkuanting	136
	Tungkuanting-Mienshe uchow-	162
	Tsinkiangpu	192
	Teinkiangpu-Haighow	112
44	Chungking-Hubichow	
	Hueichow-Ichang	922
	Ichang-Hankow	
45	Siuchow-Hengchow	434
	Hengchow-Chuchow	
46	Hengchow-Pokuan	112
47	Ceinture de Canton	16
48	Wuhu-Ningkuo	110
	Ningkuo-Kuangte	
	Total...	3,467

TABLE III.

Lines Authorised (c) and Lines Planned.

		Names of lines	Kilometres
		(A) *Manchuria and Mongolia.*	
c)	50	Kirin-Hunchen	384
	51	Ninguta-Mulin	80
c)	52	Kungchuling-Ytungchow Hailungchen-Kirin	260
	53	Harbin-Shuhui	240
c)	54	Harbin-Mergen Mergen-Aigun Aigun-Blagoveshchensk	736
c)	55	Mergen-Tsitsikar	320
c)	56	Khiakta-Urga	320
c)	57	Suiyuan-Khiakta	1,200
c)		Jehol-Chefeng	225
c)	58	Chefeng-Chingchow	305
c)		Chefeng-Taonan	600
		Taonan-Khailar	580
c)		Taonan-Changchun	260
c)		Taonan-Chenghiatung	250
		(B) *North of the Yang-Tze-Kiang.*	
c)	59	Tantung-Taiyuan Taiyuan-Tungkuan Tuan-Kuan-Sian Sian-Hanchung Hanchung-Chengtu	1,540
		Carried forward...	7,300

TABLE III *(continued)*.

Lines Authorised (c) and Lines Planned.

		Name of lines.	Kilometres.
		Brought forward...	7.300
c)	60	Pekin-Jehol.....	210
		Kalgan-Dolonor.....	305
		Dolonor-Chefeng.....	200
c)	61	Ily-Lanchon.....	2,050
c)	62	Chengting-Techow.....	175
c)	63	Sinyang-Pukow.....	430
	64	Siangyang-Shasi	330
		Siangyang-Kuangshui.....	210
c)	65	Chowkiakow-Yencheng	90
		Yengcheng-Siangyang	290
		Siangyang-Hanchung.....	640
c)	66	Chingtu-Chungking.....	280
	67	Chefu-Weihkien.....	270
c)	68	Kaomi-Yhsien.....	320
	69	Tsining-Kaifenb	345
	70	Ycheng-Tsinkiangpu.....	95
c)	71	Tsinan-Shuntefu	260
	72	Tsinan-Taokow.....	290
		(C) *Lines South of the Yang-Tze-Kiang.*	
c)	73	Shasi-Hsingy	1.050
		Changtefu-Changsh	170
	74	Kuelin-Chenchow	290
	75	Canton-Wuchow	880
		Wuchow-Nanning	
		Nanning-Lungchow.	
		Lungchow-Nankuan	
		Carried furward..	15,770

TABLE III *(continued)*.

Lines Authorised (c) and Lines Planned.

		Names of lines.	Kilometres.
		Brought forward.....	15,770
c)	76	Yunnanpu-Chungking..... Yunnanfu-Yamchow..... Suifu-Chengpu.....	1,920
c)	77	Shanghai-Pinghsiang.....	1,600
	78	Yunnanfu-Tangyue-et-Bhamo	800
	79	Canton-Macao.....	90
	80	Chachow-Skelun.....	320
	81	Sunning-Yeungkong.....	110
	82	Shekwan-Changchow.....	600
	83	Nanchang-Fuchow.....	500
	84	Hangchow-Wenchow.....	400
		Total..	22,810

General Summary.

Lines in operation.....	10,918	kilometres.
,, under construction.....	3,572	,,
,, authorised.....	15,705	,,
,, planned.....	7,105	,,

TABLE IV.
Locomotives.
(Chinese State Railways,)

Lines	Passenger Locomotives			Goods Locomotives			Shunting Locomotives			Total of Locomotives
	Number	Traction power in metric tons		Number	Traction power in metric tons		Number	Traction power in metric tons		
		Total	Average per engine		Total	Average per engine		Total	Average per engine	
Peking-Hankow	47	420,204	8,941	67	733,846	10,953	25	130,820	5,233	139
Peking-Mukden	18	141,406	7,861	109	1,015,699	9,318	27	202,232	7,494	154
Tientsin-Pukow	38	402,490	10,592	38	415,996	10,947	18	150,108	8,339	94
Shanghai-Nanking	23	172,797	6,513	10	102,536	10,254	4	33,387	8,347	37
Shanghai-Hanchow-Ningpo	12	91,191	7,599	12	147,198	12,266	12	88,553	7,379	36
Peking-Suiyuan	29	414,152	14,281	26	424,212	16,316	15	106,884	7,126	70
Chengtai	6	35,040	5,840	38	218,120	5,840	13	46,325	3,563	57
Taokow-Chinhua	1	8,349	8,349	6	59,949	9,991	3	19,856	6,618	10
Kaifeng-Honan.....	5	49,000	9,800	5	49,000	9,800	5	22,140	4,428	15
Kirin-Changchun	4	35,649	8,912	6	53,472	8,912	3	20,093	6,698	13
Chuchow-Pinghstang ...	7	60,611	8,658	3	19,956	6,652	2	11,335	5,677	12
Canton-Kowloon.....	12	112,677	9,389	—	—	—	2	3,686	1,843	14
Changchow-Amoy.....	2	10,793	5,396	—	—	—	—	—	—	2
Total in 1918	204	1,954,444	9,581	320	3,239,984	10,125	129	835,519	6,476	653

1918, total of locomotives... 653 total traction power... 6,029,947 mt. aveqage per engine... 9,234 mt.

1915, total of locomotives... 629 total traction power... 5,618,641 mt. average per engine... 8,932 mt.

TABLE V.

Rolling stock (Passenger).

(Chinese State Railways.)

Lines	1st Cl.	2nd Cl.	3rd Cl.	Other Wagons	Total
Peking-Hankow	22	32	91	81	226
Peking-Mukden	50	40	152	49	291
Tientsin-Pukow	25	28	101	41	195
Shanghai-Nanking	9	13	78	1	101
Shanghai-Hanchow-Ningpo	6	19	89	12	126
Peking-Suiyuan	7	15	32	40	94
Chengtai	3	10	25	13	51
Taokow-Chinghua	2	4	10	2	18
Kaifeng-Honan	—	9	21	18	48
Kirin-Changchun	1	4	9	3	17
Chuchow Pinghsiang	—	1	6	9	16
Canton-Kowloon	3	6	22	10	41
Changchow-Amoy	—	1	5	1	7
In 1918	128	182	641	280	1,231
In 1915	—			—	1,280

TABLE VI.
Rolling stock (Goods).
(Chinese State Railways.)

Lines	Covered	Open	Special	Total	Capacity in tons	
					Total	Average per waggon
Peking-Hankow	621	1,990	47	2,658	66,625	25
Peking-Mukden	445	2,841	130	3,416	72,028	21
Tientsin-Pukow	546	808	38	1,392	33,390	21
Shanghai-Nanking	338	83	16	437	10,859	24
Shanghai-Hanchow-Xingpo	284	220	2	506	14,434	28
Peking-Suiyuan	83	769	–	852	23,960	28
Chengtai	146	475	6	627	12,810	20
Taokow-Changhua	9	176	4	189	5,346	28
Kaifeng-Honan	39	161	—	200	4,000	20
Kirin-Changchun	51	177	8	236	4,805	20
Chuchow-Pinghstang		183	—	183	3,633	20
Canton-Kawloon	37	26	4	67	1,555	23
Changchow-Amoy	3	6	—	9	180	20
In 1918	2,062	7,915	255	10,772	243,065	23,5
In 1915		–	-	10,652	234,076	22

The ordinary capacity of wagons is 20 tons. The capacity of all new wagons is 40 tons.

TABLE VII.

Amount of Capital of Chinese State Railways.

Lines	Capital in dollars[1]	Cost per kilometre in dollars
Peking-Hankow	102,665,956	78,631
Peking-Mukden	69,771,530	70,716
Tientsin-Pukow	101,437,711	91,646
Shanghai-Nanking	30,711,075	93,890
Shanghai-Hanchow-Ningpo	22,125,378	77,254
Peking-Suiyuan	28,956,594	59,036
Chengtai	22,137,583	91,120
Taokow-Chinghua	7,377,985	48,395
Kaifeng-Honan	13,558,556	73,289
Kirin-Changchun	6,616,318	51,824
Chuchow-Pinghsiang	4,813,836	33,192
Canton-Kowloon	15,585,379	108,764
Changchow-Amoy	2,643,632	94,415
Total in 1918	428,401,535	78,275
Total in 1915	409,523,352	75,226

[1] For purposes of comparison the Chinese dollar must be reckoned at its pre-war value.

1 dollar = 1 fr. 50.
10 dollars = 1 pound sterling.
2 dollars = 1 gold dollar.

TABLE VIII.

Number of Kilometres covered by the Trains.

(Chinese State Railways.)

Lines	Passengers	Goods	Total
Peking-Hankow	2,300,500	3,755,179	6,055,679
Peking-Mukden	2,421,073	3,218,743	5,639,816
Tientsin-Pukow	1,382,850	2,390,642	3,773,492
Shanghai-Nanking	1,483,145	849,571	2,332,717
Shanghai-Hanchow-Ningpo	706,444	289,977	996,421
Peking-Suiyuan	530,906	818,265	1,349,171
Chengtai	211,091	851,235	1,062,326
Taokow-Chinghua	130,866	236,406	367,272
Kaifeng-Honan	340,655	153,939	494,594
Kirin-Changchun	204,327	432,163	636,490
Chuchow-Pinghsiang	76,632	151,041	227,673
Canton-Kowloon	286,181	145,006	431,187
Changchow-Amoy	28,086	3,318	31,404
Total in 1918...	10,102,757	13,295,485	23,398,242
Total in 1915...	9,572,995	10,921,655	20,494,650

TABLE IX.

Number of Passengers.

(Chinese State Railways.)

Lines.	Number of Passengers.	Number of Passengers per kilometre.	Receipts (Dollars).	Average length of line covered by one passenger.
Peking-Hankow....	3,615,914	421,489,408	5,268,776	116
Peking-Mukden....	3,577,703	614,494,387	7,638,917	171
Tientsin-Pukow....	2,446,283	389,497,269	4,990,150	159
Shanghai-Nanking..	6,399,082	416,119,709	2,850,415	65
Shanghai-Hanchow-Ningpo.....	5,078,247	198,731,432	1,580,018	39
Peking-Suiyuan....	859,491	57,803,566	869,592	67
Chengtai.....	273,756	30,846,576	809,676	112
Taokow-Chinghua..	238,270	10,500,525	136,114	44
Kaifeng-Honan.....	592,697	44,291,038	556,727	75
Kirin-Changchun...	383,437	30,381,866	529,448	79
Chuchow-Pinghsiang	128,736	5,660,446	47,776	43
Canton-Kowloon...	1,763,197	97,799,806	740,734	55
Changchow-Amoy..	118,565	2,982,948	22,490	52
Total in 1918....	25,475,379	2,320,798,976	25,740,841	91
Total in 1915....	26,024,500	1,901,524,065	20,043,209	73

TABLE X.

Tons of Merchandise.

(Chinese State Railways.)

Lines.	Tons.	Number of kilometric tons.	Receipts (dollars).
Peking-Hankow	3,932,303	1,093,928,104	16,458,954
Peking-Mukden	6,013,682	908,385,854	11,463,678
Tientsin-Pukow.....	2,315,832	718,268,051	5,948,227
Shanghai-Nanking	1,131,302	252,703,380	1,513,398
Shanghai-Hanchow-Ningpo	464,787	52,266,071	677,382
Peking-Suiyuan	1,305,378	134,312,867	3,128,177
Chengtai	1,131,581	89,668,995	2,375,419
Taokow-Chinghua.....	935,081	67,037,061	765,908
Kaifeng-Honan.....	393,407	28,675,713	545,501
Kirin-Changchun	448,449	43,823,717	1,094,514
Chuchow-Pinghsiang...	378,886	29,246,395	387,055
Canton-Kowloon.....	95,308	6,442,733	120,772
Changchow-Amoy.....	5,688	46,930	1,550
Total in 1918.....	18,551,684	2,425,807,677	44,490,538
Total in 1915.....	15,910,375	2,250,774,630	32,473,043

TABLE XI.

Consumption of Fuel.

(Chinese State Railways.)

Lines	Tons	Expenditure (dollars)	Price per ton (dollars)	Weight per train per kilo. (kilog.)	Cost per train per kilo. (Cents).
Peking-Hankow....	150,916	906,042	6.00	24.92	14.96
Peking-Mukden	168,110	834,025	4.96	30.36	14.78
Tientsin-Pukow	101,932	695,236	6.82	27.45	18.42
Shanghai-Nanking..	48,185	862,869	17.91	20.86	37.28
Shanghai - Hanchow-Ningpo	30,338	627,465	20.68	31.00	62.76
Peking-Suiyuan	50,602	308,688	6.10	37.50	23.00
Chengtai	21,158	104,485	4.94	19.92	9.84
Taokow-Chinghua ..	9,059	51,588	5.69	25.06	14.29
Kaifeng-Honan	12,722	94,142	7.40	25.72	19.03
Kirin-Changchun...	18,133	134,583	7.42	30.44	21.12
Chuchow-Pinghsiang	5,767	23,841	4.13	25.33	10.47
Canton-Kowloon ...	13,850	306,465	22.13	32.12	71.07
Changchow-Amoy ..	541	10,820	20.01	17.23	34.48
Total in 1918...	631,313	4,960,260	7.86	26.98	21.20
Total in 1915...	504,285	3,389,461	6.72	24.61	16.53

TABLE XII.

Receipts in dollars [1]

(Chinese State Railways.)

Lines	Transports	Miscellaneous	Total (Dollars)
Peking-Hankow	23,634,838	187,783	23,822,621
Peking-Mukden	20,629,634	223,898	20,853,532
Tientsin-Pukow	12,407,087	196,272	12,603,359
Shanghai-Nanking	4,767,292	86,144	4,853,436
Shanghai-Hanchow-Ningpo	2,370,193	27,157	2,397,350
Peking-Suiyuan	4,216,541	77,856	4,384,397
Chengtai	3,161,653	48,784	3,210,437
Taokow-Chinghua	915,832	33,085	948,917
Kaifeng-Honan	1,229,957	40,248	1,270,205
Kirin-Changchun	1,761,920	14,224	1,776,144
Chuchow-Pinghsiang	550,420	3,972	554,392
Canton-Kowloon	887,839	23,360	911,199
Changchow-Amoy	44,861	1,298	46,159
Total in 1918	76,518,059	1,074,094	77,652,153

[1] For value of dollar, see footnote to Table VII.

TABLE XIII.

Expenditure (in dollars).

(Chinese State Railways.)

Lines	Expenditure
Peking-Hankow	7,977,853
Peking-Mukden	6,903,148
Tientsin-Pukow	6,334,726
Shanghai-Nanking	2,969,196
Shanghai-Hanchow-Ningpo	2,065,832
Peking-Suiyuan	2,859,949
Chengtai	1,337,385
Taokow-Chinghua	426,454
Kaifeng-Honan	704,622
Kirin-Changchun	1,075,219
Chuchow-Pinghsiang	552,598
Canton-Kowloon	1,029,083
Changchow-Amoy	86,550
Total in 1918	34,332,425

TABLE XIV.

Expenditure per kilometre in operation in 1918.

Coefficient of operation in 1915, 1916, 1917, 1918.

Lines	Expenditure per kilometre in operation in 1918	Coefficient of operation for expenditure and receipts.			
		1915	1916	1917	1918
	Dollars				
Peking-Hankow	6.076	42	34	37.4	33.1
Peking-Mukden	7.081	49	42	38.4	33.5
Tientsin-Pukow	5.723	62	50	50.9	50.2
Shanghai-Nanking	9.077	59	50	52.8	61.1
Shanghai-Hanchow-Ningpo	7.216	77	80	81.2	86.2
Peking-Suiyuan	5.777	54	60	58.5	65.1
Chengtai	5.505	63	59	50.8	41.7
Taokow-Chinghua	2.798	60	46	41.3	44.9
Kaifeng-Honan	3.803	46	44	4.63	55.4
Kirin-Changchun	8.277	84	82	69.7	60.5
Chuchow-Pinghsiang	6.095	68	95	82.3	99.6
Canton-Kowloon	7.181	99	105	104.6	112.9
Changchow-Amoy	3.090	249	158	159.5	187.5

II.

INLAND NAVIGATION.

The Chinese Delegation regrets that at present it is not in possession of the data necessary for drawing up a complete report on the transport situation on navigable waterways in China. Under these circumstances it has prepared the following statement with the figures at its disposal.

General Review of the Situation of Transport on Waterways.—For the purpose of direct import and export on national navigable waterways, China possesses a river — *the Yang-Tze*—which, in view of its present trade and future possibilities, its riparian population and navigability, is inferior to no other river in the world.

When the river is in flood, vessels with a draught of 8 m. 50 can ascend as far as Hankow, which is 610 (1) miles from the sea; vessels with a draught of 3 m. 10 can ascend a further 360 miles as far as Ichang, and vessels with a draught of 1 m. 50 can continue 400 miles as far as Chungking; the total distance is therefore 1,370 miles from the sea.

Apart from the Yang Tze (including the Whangpoo), the 20 kilometres of the river Liao at Newchang, the 52 kilometres of the river Min at Pachoda Anchorage, and the 116 kilometres of the Delta of Sikiang at Whampoa (Canton), China has no navigable waterways suitable for long-distance navigation.

For coasting vessels, there are the 47 miles from Haiho to Tien Tsin; 12 miles of the river Yung as far as Ningpo; 30 miles from Wukiang to Wenchow; 41 miles of the river Min to Foochow (when the improvements at present in progress have been completed) and 80 miles from the Sikiang Delta to Canton.

For vessels of shallow draught (1 m. 85 for example) — but of considerable tonnage — employed on rivers and estuaries, certain tributaries of the Yang-Tze, and 180 miles of the Sikiang at Wuchow are available.

It is impossible to estimate the extent of the waterways which can be navigated by small motor-craft.

The above classification is not absolutely strict; it is of a general nature and has been compiled for the purpose of this statement.

The ports situated at the mouth of rivers, that is to say *Newchwang, Tientsin, Shangai, Ningpo, Wanchow, Pachoda Anchorage,* and *Canton,* are also seaports.

As to seaports properly so-called, there are only *Chinwangtao, Chifu, Santuao, Amoy, Swatow, Kiungchou (Hainan Island)* and *Pakhoi.*

It should of course be borne in mind, when the question of Chinese ports is under discussion, that only "open ports" are meant—*i.e.* ports which have been opened either by treaty or voluntarily.

[1] Nautical mile 1,852 m.

In addition to these ports, there are several important anchorages on the 2,500 miles of the Chinese coast line. There is a considerable amount of native commerce in these ports, and it is constantly increasing. There can be no doubt that several of these ports will develop considerably in the future, and even now — considering the lack of communication by rail and water with the " hinterland ", they are comparatively important.

Present Traffic Regime for Foreign Vessels on Chinese navigable Waterways. - 1. In accordance with certain treaties, the subjects of certain Powers, commonly known as " Treaty Powers ", have the right to trade with ports known as " treaty ports ". Other ports have also been voluntarily thrown open to foreign trade. These ports together form what are known as " open ports ". The traffic coming in within the scope of these treaties comprises import and export trade, and the coasting traffic between open ports.

2. Under the " Inland Water Steam Navigation Regulation ", the subjects of these " Treaty Powers " have the right to carry on coasting traffic under their own flag, between open and non-open ports, whether situated on the coast or on the rivers.

3. In accordance with the regulations of the Sikiang, the subjects of " Treaty Powers " are entitled to certain additional trading facilities on this river ; these comprise special rights for foreign commerce and relate to trade between the Chinese ports on the *Sikiang* and *Hongkong* and *Macao*.

Particulars as to Open Ports.

ANTUNG. — On the Yalu, —a frontier river —situated 12 miles from the sea. Navigable depth : about 3 m. 10. Has railway communication with Manchuria and the Corea. Has river communications with the interior by small boats.

NEWCHWANG. — On the river *Liau-ho*, 13 miles from the sea. Navigable depth about 5 m. 25. Has railway communication with Manchuria and Chi-Li. Has river communication with the interior by small boats. Work is being carried on with a view to improving the approaches ; above Newchwang the river can be improved.

CHINWANGTAO.—Seaport, belonging to the " Kailan Mining Company ". Has railway communications, principally used for the transport of coal.

TIENTSIN.—On the *Hai-ho*, situated 47 miles from the sea. Navigable depth about 3 m. 40 to 4 m. 30. Very important railway centre ; heavy river traffic, by means of small boats, with the interior. Intensive works for upkeep of the bar and river. Although the greatest navigable depth to be hoped for from any works that may be undertaken will probably not exceed 6 m. 10, Tientsin, is a very important port by reason of its commerce with the "hinterland", which has been much developed, and of its inland river communications.

LUN-KOU.—Seaport of small importance, having neither rail or river communication with the interior.

CHI-FU.—Seaport, without rail or river communication with the interior, but with a rich though inextensive "hinterland". An artificial harbour is course of construction ; a railway is projected.

SHANGHAI.—On the *Wangpu* (12 miles from the sea), which runs into the estuary of the Yang-Tse ; is one of the chief industrial and commercial towns in China ; has rail and river communications with the interior, but these do not yet adequately supply the needs of Shangai's immediate "hinterland".

In a certain sense, however—in its capacity as a maritime commercial port situated at the mouth of the Yang-Tse — Shanghai has all the provinces situated on the Yang-Tse from Sze-Chwan as "hinterland".

Costly and extensive works are being undertaken with a view to improving the depth of the entrance channels. The present navigable depth is 9 m. 25 at high tide. A scheme is at present being considered with the object of providing entrance and anchorage for ships having a draught of 14 m.

THE PORTS OF THE YANG-TSE.—Before reviewing these in detail, a few remarks on the river itself may be made. On the higher reaches, a depth of 9 m. 25 is available as far as Hankow. When the river is low, this depth is reduced, during a limited period, to 3 m. 10 at certain difficult spots.

This situation can doubtless be improved, but although it is permissible to hope that a depth of 9 m. 25 throughout the whole year may be obtained, it is nevertheless by no means certain. This important question has been mooted, but has not yet been officially studied by the Government.

The 360 miles of the river between Hankow and I-Chang, known as the Middle Yang-Tse, have an average available depth of 3 m. 10. Owing to the very unstable character of the channel, the improvement of this portion of the river meets with great difficulties.

The 400 miles of river between I-Chang and Chung-King, known as the Upper Yang-Tse, are studded with rapids ; nevertheless, steamers with a length of 60 m. and a draught of 1 m. 55 can use it during the greater part of the year. Incidentally, it should be noted that the level of this section varies between 28 and 37 m. ; 52 m. 50 has, however, been registered.

The rapids—which, as it were, divide the river into reaches—cannot be entirely regulated, but certain improvements could be executed which would facilitate navigation and assure it a certain security. This question was at one time considered officially. The importance of this part of the river is accentuated by the extreme difficulty of constructing railways in the vicinity, owing to the high mountain ranges which cut the river at right angles.

It should be added that the Yang-Tse, in its course from Chung-King to the sea, carries everything that is necessary for a population estimated at 200,000,000 souls.

On the Lower Yang-Tse the ports of *Chen-Kiang*, *Nanking*, *Wu-Hu*, and *Kiu-Kiang*, are at present relatively unimportant because their "hinterland" is not being utilised.

PU-KOU.—Situated 237 miles from the sea, at the terminus of the Tientsin-Pu-Kou railway. The depth of its approaches reaches 9 m. 50. There will doubtless be a great concentration of railway traffic from the north and east at this port, which has consequently a great future.

HANKOW.—610 miles from the sea. Is the commercial and industrial metropolis of Central China, with a future as promising as — if not more so — than that of Shanghai.

It commands an immense hinterland, as it is the port of transhipment, not only for the Middle and Upper Yang-Tse, but also for the River *Yuen-Kiang*, Lake *Tung-Ting* and the River *Han-Yang*. It is situated at the terminus of the Pekin-Hankow Railway and of the Hankow-Canton railway, which is almost finished.

YU-CHOU.—At the entry of Lake Tung-Ting. A port of no commercial importance.

CHANG-SHA.—90 miles up the River Yuen. A port of great commercial importance, accessible for the greater part of the year for vessels of relatively large draught.

Locks are required to improve the channel.

SHA-SHI.—On the Middle Yang-Tse; a comparatively unimportant port.

I-CHANG.—On the upper section of the Middle Yang-Tse, its importance lies in the fact that it is a port of transhipment for the commerce of the Upper Yang-Tse.

CHUNG-KING.—1,370 miles from the sea. Commercial and industrial centre for the great part of Western China, with its intensive production. It has, as yet, no railway communications, and depends for its traffic entirely upon the Yang-Tse. This port also has prospects of a brilliant future.

Returning to the coast, there are Ning-Po, Wen-Chow and Santuao, ports which are at present, of small commercial importance, doubtless because they lack the means to exploit their hinterland.

FU-CHOW.—Vessels drawing 7 m. 40 may regularly use the Pachoda Anchorage, which was formerly only a port of call for packet boats. No railway communications; the rivers which enter the sea at this point are of no importance. The port will, no doubt, develop considerably when

it is able to exploit its hinterland. Works have been undertaken to improve the channel between the Pachoda Anchorage and Fu-Chow.

AMOY and SWATOW.—These sea-ports have a considerable amount of trade. Swatow possesses a small railway, and they both have river communication with the interior. The former will take vessels of any draught ; the latter vessels drawing up to 7 m. 40.

CANTON.—The commercial and industrial metropolis of Southern China. Canton can only take vessels drawing 6 m. 80, and improvements in this port are likely to prove very costly.

Its outer harbour, Whampoa, is accessible for vessels drawing 8 m., but may be rendered accessible for larger vessels. Whampoa will doubtless become an important port in the future, as it will be connected with the future Hankow-Canton line, and has the advantage of extensive river communications with the interior, including the waterway of the Sikiang.

THE PORTS ON THE SIKIANG.—*Kong-Moon*, *Sam-Shui* and *Wu-Chow* are accessible only to vessels built to navigate rivers and estuaries, that is to say, their external commerce is limited to that with Hongkong and Macao. The average depth is four meters. Above Wuchow there are rapids navigable only by vessels of small draught ; only these craft and the Chinese types of vessels (junks) visit the ports above Nanning and Lung-Chow.

The possibilities of improving navigation conditions on the sections in which the rapids occur have not yet been ascertained.

To return to the coast :

KIUNG-CHOW (or HOI-HOW), situated on the coast north of Hainan, is of comparatively small importance.

PAK-HOI, in the Gulf of Tonkin, is also at present a port of comparatively small commercial value, but, with the prospect of communications with the interior, will probably develop considerably.

Navigation by Chinese Steamships.—For various reasons, the development of steamship navigation in China has been very slow ; the principal reason for this has been the lack of laws to protect the interests of Chinese shipowners.

The Government is at present endeavouring the improve this state of affairs.

The present tonnage of long-distance vessels under the Chinese flag amounts to 31,334 tons; the available tonnage of coasting vessels in 1918 amounted to 80,247,706 tons, but there are a great number of small steamships on coasting and river services.

Foreign Navigation.—Apart from long-distance vessels, there are a large number of vessels under foreign flags engaged in coastal trade, in river trade, from one "Treaty Port" to another, and in trade between "Treaty Ports" and "Non-Treaty Ports".

It must be noted that the trade with small vessels is carried on by the nationals of certain States according to the provisions of Treaties.

Traffic Statistics.—The only available statistics are those giving the tonnage of vessels registered by the Maritime Customs in 1912 and 1918. The list of these is as follows:

	1912	1918
An-Tung	231,586 tons	230,040 tons
New-Chwang	1,255,654 »	425,694 »
Chin-Wang-Tao	694,352 »	1,527,541 »
Tientsin	2,340,493 »	1,598,292 »
Lun-Kow	»	37,813 »
Che-Fu	3,132,465 »	1,835,574 »
Shanghai	18,643,803 »	14,049,293 »
Chen-Kiang	6,305,563 »	7,011,361 »
Nanking	5,813,127 »	7,191,850 »
Wuhu	6,147,003 »	7,380,458 »
Kiu-Kiang	5,779,662 »	6,900,102 »
Hankow	5,271,620 »	5,925,693 »
Yu-Chou	1,859,443 »	1,569,289 »
Changsha	523,579 »	349,227 »
Sha-Hsi	716,302 »	858,577 »
I-Chang	530,860 »	585,946 »
Chung-King	79,761 »	69,690 »
Ningpo	1,861,575 »	1,797,255 »
Wenchow	117,206 »	138,897 »
Santuao	62,969 »	73,236 »
Fu-Chow	1,040,421 »	632,514 »
Amoy	2,140,913 »	1,251,245 »
Swatow	3,066,767 »	1,857,688 »
Canton	5,067,534 »	3,238,447 »
Kong-Moon	472,914 »	514,982 »
Sam-Shui	1,245,619	1,424,112 »
Wu-Chow	678,368 »	797,298 »
Nanning	43,099 »	87,500 »
Kiung-Chow (Hoihow)	746,354 »	401,864 »
Pak-Hoi	220,264 »	60,138 »

Note. With regard to the large rivers in the north of China (Amur, Sungari, Ussuri, etc.), the information which we possess is hardly detailed enough for inclusion in this survey.

CZECHO-SLOVAKIA.

I.

RAILWAYS.

The Western portion of the Republic of Czecho-Slovakia consists of the territories of the Czech Crown lands: Bohemia, Moravia and Silesia, which, before the dissolution of the Austro-Hungarian Empire, formed the North-West portion of Austria, and the Eastern portion consists of Slovakia and Sub-Carpathian Russia, which formed the Northern portion of Hungary before the revolution of October 28th, 1918.

Czecho-Slovakia has the shape of an elongated trapezoid of a length of approximately 900 kilometres and an average width of 200 kilometres. The pointed shaped territory on the extreme East (Sub-Carpathian Russia) has a maximum width of only 80 kilometres. The total area of the Republic is about 139,000 square kilometres; the population numbers more than 13,000,000.

The geographical formation of the Republic of Czecho-Slovakia, as also its situation in the centre of Europe, gives an extraordinary importance to the Czecho-Slovak Railways from the point of view of international transport; the Republic of Czecho-Slovakia — as regards the direction North to South — is, in fact, essentially a "transit" State.

Plant.

(a) *State of Lines, Bridges, etc.*

The Republic of Czecho-Slovakia has inherited from the former Austro-Hungarian Monarchy a system of railways composed as follows:—

State railways	8,168 km.
Privately owned railways worked by the State	4,234 »
Total for lines worked by the State	12,402 km.

Privately owned railways worked by private companies . .	1,077 km.
Railways owned by foreign administrations	115 »
Total of lines in Czecho-Slovakia	13,594 km.

1,589 kilometres of State railways and 4,375 kilometres of privately owned railways are of secondary importance. All these railways are generally of normal gauge. The railway system — particularly in Bohemia — is highly developed ; there are 13 km. of lines in 100 square kilometres of territory. Slovakia the system is less extensive and only attains 6 km. of lines to 100 square kilometres of territory.

One may therefore say that on an average the Republic of Czecho-Slovakia has 10 kilometres of line to 100 square kilometres of territory. Immediately after the collapse of the Austro-Hungarian Empire, the Republic of Czecho-Slovakia was obliged to take over the whole administration of this network of railways, of which two-thirds had been hitherto administered by the Viennese or Hungarian authorities. A central office of management was at once instituted at Prague, which was able, in spite of the difficulties of the time, not only to maintain the working of the lines but also to steady the whole situation.

At the end of three months the new Ministry of Railways at Prague was ready to take over the central administration ; the central office was suppressed and seven administrative areas were organised ; these administrations (Plzen, Prague, Hradec Kralové, Brno, Olomouc, Bratislava, Kosice) are now responsible for the administration of the state railways. The section of lines under these different administrations varies from 1,300 to 2,100 kilometres.

The new administration was faced with difficulties whose immediate solution was extraordinarily complicated.

In the first place it was necessary to put traffic on a basis corresponding to the needs of the liberated territories, as well as to the new orientation of foreign traffic.

The general flow of traffic which went formerly from north to south was replaced by traffic from west to east and east to west, following the longitudinal axis of the Republic.

The principal routes for exports generally follow the lines Prague-Podmokly and Prague-Vsetaty-Privory-Decin for the North Sea and the Baltic : Prague-Ceska Trebova-Olomouc-Bohumin for the Baltic, crossing Poland, and for the Black Sea ; the lines Prague-Brno-Bratislava give access to the Adriatic Sea.

The great international line Bordeaux-Paris-Prague-Warsaw and Prague-Bucarest-Black Sea crossed the Czecho-Slovak Republic in its longitudinal direction on the section Cheb-Prague-Bohumin.

The conditions of these lines not completely meeting present needs and the existing lines in the longitudinal direction being insufficient in number and for the most part of weak construction, work had to be started immediately on their reconstruction.

There is a marked lack of uniformity in the rails composing the Czecho-Slovak railway system due to the fact that our railways originate from various private companies.

To-day, for example, on some of our main lines we still have rails of an old type of which the average metre weights are 33.05 kgs, 34.50 kgs, 35.35 kgs; in the case of certain new rails on lines used by express trains the average weight per metre is 42,80 kgs (in Slovakia) and 44,35 kgs.

On lines not used by fast trains a newer type of rail is in use weighing 34.50 kgs and 35.65 kgs per metre. Technical uniformity cannot be attained at once; the Ckecho-Slovak administration is, however, endeavouring to strengthen the tracks and the bridges by degrees so as to be able to increase the maximun load from 14.5 tons per axle-load to 20 tons on the main lines and to 16 tons on lines of secondary importance.

The bridges are calculated to carry a load of 16 tons per axle; and it is possible to increase their strength by some improvements.

The highest speed allowed on the Austrian lines was 90 km. per hour and on the majority only 80 km. per hour. In Slovakia the maximum speed was 60-70 km. per hour.

It is now proposed to increase the maximum speed on the principal lines for international traffic to 100-120 km.

(b) *Urgent works to be undertaken.*

It was of the greatest importance to arrange for communications between the east and west of the Republic and to carry out speedily the work necessary to ensure operation of the lines already in existence. New junction lines had also to be laid down, and the most important portions of the line strengthened.

First of all a regular service was established with the metropolis of Southern Slovakia, Bratislava, the principal Danube port of the Republic of Czecho-Slovakia.

With this object the Breclava-Bratislava line was strengthened and adapted for fast trains, and double tracks were laid on certain portions.

Owing to the delimitation of frontiers, particularly in Slovakia, certain sections of our lines no longer have their junctions with the remainder of the system. Liaison with the lines split up by the new frontier in the district of Gemer in Slovakia was effected near Banrieve. Communication with the Ruthene territory was completed by the construction of the line Banovce-Vajany (19 km. still under construction).

Double tracks are being laid on the line Ceska-Trebova-Olomouc line and on other lines in Bohemia with a total length of 112 km. (7 % of the length of double track lines prior to the war).

It has been necessary to establish more than 30 new frontier stations on the frontiers of Austria and Hungary; as the existing stations were not originally built for this purpose and their installations are not therefore suitable for customs and other frontier service, there are temporary difficulties, which can only be surmounted slowly.

The present Czecho-Slovakian railways have only suffered damage from the war on a few lines of the systems of Eastern Slovakia and Ruthenia.

But, on the other hand, the invasion of South-Eastern Slovakia by bands of Bolshevist Magyars caused considerable damage in those regions. The damage done to the superstructure of the track and to the bridges has for the most part already been repaired.

(c) *Work required for final Constructions.*

During the war all the Czecho-Slovak railways suffered greatly from lack of upkeep and the resulting abnormal wear and tear.

Work on the permanent way was restricted to the most urgent repairs, the greater part of all repairing material being used within the war zone.

For this reason, repairs in the immediate future will greatly exceed the normal.

Before the war, for example, there was an annual replacement of 8 % of the 18,000,000 sleepers at present on the railways of the Czecho-Slovak Republic.

The replacement of sleepers fell in 1916 to about 5 % ; in 1917 to 4 % ; in 1918 to 3 %, and on certain lines even to 2 %.

In 1919 and 1920 only 3 % of the sleepers were replaced. Sleepers were difficult to obtain and financial resources were low. In consequence these two years have in no way contributed to the restoration of the superstructure.

During the next five years it is proposed that sleepers should be replaced at a rate exceeding by 20 % annually the pre-war rate ; in consequence a complete renewal will be probably obtained by 1926.

This will also be the case as regards the laying of new rails etc.

(d) *Improvements and the Creation of Proposed New Lines.*

In addition, it has been necessary to draw up a scheme for the construction and systematic improvement of the Czecho-Slovak lines.

By the law of March 30, 1920, the National Assembly decided upon a programme extending over several years, according to which 6½ milliards of Czecho-Slovak crowns were allocated to proposed new construction.

When this programme is put into effect there will be direct connection between the Western and Eastern parts of the Republic by means of a new line through the centre of Slovakia ; the railway system will be adapted to the new itineraries, and equipped to meet the future economic needs of the country.

Fifteen new lines are to be constructed of a total length of 558 kilometres, of which 389 kilometres will be in Slovakia, and 111 will constitute junction lines between the Slovak railways and the railways in the other parts of the Republic.

Transport on the present lines will be particularly improved by the construction of double tracks, for before the war, only 1,607 kilometres of the lines at present belonging to the Czecho-Slovak Republic had double tracks.

After the proposed construction has been carried out, thedou ble-tracked railways will represent 16 % of the total railway system.

At the same time all the stations of importance will be enlarged in accordance with the altered requirements of present transport conditions. The principal stations on the lines intended for international traffic will be transformed into marshalling stations.

(e) *Rolling-stock.*

A great difficulty with which the Czecho-Slovak administration has had to contend from the beginning has been the serious shortage of rolling-stock. The allocation commission established according to Article 318 of the Treaty of Saint-Germain has not yet completed the distribution of the rolling-stock of the old state railways of Austria Hungary. In consequence, the railways of the Czecho-Slovak State, as indeed the railways of the other Austrian Succession States, have not so far received the material which belongs to them, except the vehicles specially constructed for them during the last two years. In these circumstances, we can only speak of the condition of the material in the undistributed park at present on the territory of the Czecho-Slovak Republic. During the war a large number of locomotives and wagons were sent from the present territory of the Czecho-Slovak Republic to the frontiers of former Austria-Hungary within the war zone. A part of this stock has become booty for the Allies ; a much larger part has been retained in certain states and immobilised for various reasons. This state of affairs is one of the principal causes of the very serious transport crisis which threatens Central Europe, a crisis which can only be adjusted by the final and rapid distribution of rolling-stock as provided for in the Treaties of Peace.

(a) *Locomotives.*—Table No. 1 shows the present number of locomotives in the common park belonging to the Czecho-Slovak State railways, according to a comparison between the pre-war situation and actual conditions at present.

TABLE No. I.

		Number of locomotives now on the lines, Czecho-Slovak, June 30, 1914.	Czecho-Slovakia's share of locomotives constructed during the war.	Total number of locomotives belonging to Czecho-Slovak lines.	Number of locomotives in actual use on the Czecho-Slovak lines in 1918.	Unfavourable balance against Czecho-Slovakia.
		1	2	3=1+2	4	5=3—4
Locomotives in the common park.	In Bohemia, Moravia, Silesia.	2,822	450	3,272	2,783	489
	In Slovakia.	750	213	963	191[1])	772
	Total . .	3,572	663	4,235	2,974	1,261

The number of locomotives in the common park of which the Czecho-Slovak State railway system is now short is therefore 1,261.

Slovakia, especially, had practically no locomotives, and had to be assisted by locomotives from the west of the Republic. The existing shortage thus became more acute, and constituted one of the principal causes of the transport difficulties in Czecho-Slovakia.

The administration of the Czecho-Slovak railways had to make great efforts in order gradually to improve the situation as regards locomotives and prevent a serious transport crisis.

Ninety-two locomotives obtained under the terms of the Armistice with Germany were ceded to the Czecho-Slovak administration by the Allied States. By advances made in anticipation of the final distribution and by other means, the Czecho-Slovak railways have obtained so far more than 300 locomotives. By purchases abroad and from firms in the country (Première usine de locomotives de la Bohême et Moravie, at Prague; Breitfeld Danek & Co., at Slany; Maison Skoda, at Plzen) 200 locomotives have been procured.

In this way at the end of 1920 the number of locomotives increased to 3,560. This number is still absolutely insufficient compared with the pre-war situation, especially if account be taken of present-day conditions, for it must be remembered that the number of locomotives under repair

[1] During the Bolshevik invasions 99 Slovak locomotives and 15 locomotives from Bohemia were carried off.

has increased, the quality of the coal is extremely bad, the hours of work have been reduced, while the requirements of the country's economic life are continually growing.

(b) Wagons.—The insufficiency of common park wagons on Czecho-Slovak lines is an even greater obstacle to the development of traffic than the shortage of engines, and it is also a hindrance to the economic life of the country.

The figures in Table No. 2 reveal the important fact that the number of wagons in the Czecho-Slovak Republic is decreasing in an alarming manner. The statistics of transit wagons in the frontier stations show that this decrease steadily continues. The Czecho-Slovak Republic, where the number of common park wagons is extremely low, is losing every day an important number of vehicles. The number of wagons which have not been returned from foreign countries amounted on January 31st 1912 to 4,776 covered wagons and 10,374 open high-sided trucks.

The reason for this is that the number of wagons which leave Czecho-Slovak, an essentially exporting State, is considerably greater than the number of loaded wagons which enter the country ; the empty wagons are only returned after great delays, if they are returned at all. The same applies to wagons in transit.

TABLE No. 2.

Results of the census of coaches and wagons belonging to the common park.

		Coaches and guards vans.	Goods trucks.	Total.	Deficit of coaches and wagons in comparison with the pre-war situation.
Census. . .	15-III-1919	7,236	59,732	66,968	70,900
	8-IV-1920	7,347	47,172	54,519	83,349
DIFFERENCE		+ 111	— 12,560	— 12,449	—

This situation, from which the Czecho-Slovak Republic suffers severely, is caused by the uncertainty with regard to the ownership of the wagons ; the park of wagons is common to all the Austrian Succession States and ought therefore to be at the common disposal of these States. In reality, each of these States, owing to practical requirements, has come to regard the park wagons which happen to be on its territory as belonging to it, or at any rate as intended to serve its own interests first.

As a result of these obstacles in the way of the return of empty wagons to their line of origin, the exporting States find themselves in an intolerable situation. On the one hand they are obliged to allow wagons to leave the country in order not to leave their factories idle, and, on the other, their internal traffic is endangered by the constant departure of wagons from their territories.

Moreover, the rolling-stock is not kept in proper repair, because the ownership of the wagons is uncertain, and the majority of the States where the vehicles are retained are quite unable to repair the stock which encumbers their lines. Hence, while the total number of wagons in Central Europe is more than sufficient, certain succession States, and especially the Czecho-Slovak Republic, suffer from a shortage of wagons which absolutely prevents their economic development. In order to improve the traffic situation in Central Europe, it is essential that the common park, which beloged to the former Austro-Hungarian Monarchy, should be immediately and finally divided up. The conclusion of an international Convention for the mutual exchange and use of rolling-stock under the control of the League of Nations is thus becoming more and more indispensable.

Czecho-Slovakia has made a great effort to increase with her own resources her insufficient share in the common park stock. She has built in her own factories more than 20,000 wagons, and has bought from foreign countries several thousands of wagons, so that to-day the number of wagons marked "CSD" amounts to 25,000. In addition, 2,000 new private wagons have been included in her park. One thousand wagons, which by the terms of the Armistice are destined for France, have been repaired, but these wagons, in accordance with an agreement, are still being used on Czecho-Slovak lines.

All these sacrifices have produced no result owing to the reasons explained above.

It has only been possible to avoid an economic and social catastrophe owing to the efforts made to accelerate the circulation of wagons on internal lines, and also owing to the important purchase mentioned above, and to the special measures which the Czecho-Slovak administration has been obliged to take with regard to the traffic with certain neighbouring systems, such as, for example, the equal and detailed exchange of wagons.

(c) *Upkeep of rolling-stock.*—The number of engines under repair, particularly after the armistice, was very great (40 % as against 18 % before the war). By making use of private industry by the enlargement of repairing sheds, and, above all, by increased work, it has been possible to reduce the number of engines under repair from 37 % at the beginning of 1919 to 32 % at the end of 1920. Wagon repairs have advanced considerably. At the beginning of 1919, the number of passenger coaches under repair was 33 %, and of goods trucks 14 %. At the end of 1920 this percentage had fallen to 14.4 % in the case of passenger coaches and to 7.8 % for goods trucks. In all, the following repairs were carried out in 1920.

(a) *Locomotives:*

Heavy Repairs	645
Medium Repairs	1,797
Light Repairs	18,673
Total: Locomotives	21,115

(b) *Coaches, Guards' Vans and Postal Vans:*

Heavy Repairs	3,305
Medium Repairs	5,370
Light Repairs	48,949
Total: Coaches, etc.	57,624

(c) *Goods Trucks:*

Heavy Repairs	15,164
Medium Repairs	19,915
Light Repairs	288,895
Total: Goods trucks	323,974

Thanks to this effort Czecho-Slovakia has largely contributed to restoring to a satisfactory condition the rolling-stock on the lines of the Austrian Succession States. The number of repairing sheds at the present time (ten large sheds with 10,500 workmen, and 16 depot sheds with 4,300 workmen) is insufficient to keep in repair the number of wagons necessary for the future requirements of the economic life of the country, and the programme mentioned above provides for the constructions of four new repairing sheds.

Traffic.

(a) *Passenger Traffic.*

That Czecho-Slovakia is a transit State is shown by the fact that the time-tables of trains are largely based upon international time-tables.

The importance of passenger traffic in Czecho-Slovakia may be deduced from Table No. 3.

TABLE No. 3.

	Number of passengers conveyed.	Per kilometre of line in operation.	Number of kilometres travelled by passengers.	Length of journey per traveller in kilometres.	Comparison of length of line in operation.
Austrian Railways 1913.	153,518,550	10,968	5,804,066,266	37.81	14,029
Czecho-Slovak Railways 1919.	133,304,075	16,449	5,210,903,157	39.09	8,103

The number of passengers per kilometre carried on the Czecho-Slovak railways exceeds by 50 % the pre-war Austrian figure. The distance travelled per passenger on the Czecho-Slovak lines exceeds the Austrian average by 1.3 kilometres.

(b) *Goods Traffic.*

The time-tables for goods trains, particularly for through trains, (trains direct) also take into consideration relations with neighbouring States.

Present-day transit traffic is governed by a large number of agreements regarding complete trains loaded with one kind of goods, particularly with regard to the transport of coal from Upper Silesia to Italy via Czecho-Slovakia and Austria, and also transport from Austria to Roumania and from France and Austria to Poland. Moreover, loaded trains often convey goods in transit without being subjected to the above-mentioned agreements.

Table No. 4 represents goods traffic on the Czecho-Slovak railways in 1919, as compared with 1913.

This table shows to what extent traffic on the Czecho-Slovak railways has been reduced through lack of wagons, locomotives and coal. Although Czecho-Slovakia is primarily an industrial State, the present traffic, as compared over an equal distance in kilometres, represents only two-thirds, or less, of the pre-war goods traffic in Austria. Indeed, the requirements of industry as regards wagons cannot be satisfied.

The only demands which have been almost completely met are those in respect of coal transport, to which special attention is paid. In 1919, out of 1,651,133 wagons required, it was possible to load 1,549,792 wagons; in 1920, 1,648,883 wagons were required and 1,549,766 were delivered.

TABLE Nº 4.

Goods Traffic.

	Fast goods traffic.	Consignment by partly-loaded wagons.	Consignments by loaded wagons.	Total.	Per km. of line in operation.	Service consignments.	Grand total.	Per km. of line in operation.
	In Tons.							
Austrian State Railways in 1913	1,140,768	5,554,610	79,131,586	85,826,964	6,071	7,452,801	93,279,765	6,599
Czecho-Slovak State Railways 1919.....	326,666	1,648,235	31,582,293	33,557,194	4,109	3,877,664	37,434,858	4,584
	In Kilometric Tons.							
Austrian Railways in 1913.....	148,095,844	890,356,040	11,184,364,542	12,309,564,326	870,030	1,228,108,352	13,537,672,678	957,712
Czecho-Slovak Railways in 1919.....	34,765,741	175,096,240	3,219,485,964	3,429,347,945	419,956	545,416,690	3,974,764,635	486,747

As Czecho-Slovakia is second in the list of European countries which produce sugar (Germany 2.7, Czecho-Slovakia 1.9, France 0.9, Holland 0.3, Belgium 0.3 million tons per annum) the period of the sugar-beet harvest (from the end of September until November) is a difficult time for the railways, — all the more so as the coal industry has to be supplied at the same time, and the country has also to be provided with food for the winter.

The following figures give some idea of the importance of these transports :

TABLE No. 5.

	Tons carried.		Number of wagons employed.	
	1919	1920	1919	1920
Beets.	1,544,421	1,750,462	127,082	125,282 *
Prepared beets.	871,576	1,083,885	67,661	77,928
Raw sugar	189,699	246,601	14,551	17,450
TOTAL.	2,605,696	3,080,948	209,294	220,660

Rates.

Immediately after the armistice, in order to avoid economic dislocation resulting from too sudden changes, it appeared expedient to maintain provisionally the Austrian and Hungarian regulations and rates, and only to change them gradually, taking into consideration the new situation.

As regards international goods traffic, there was at first a complete lack of established laws governing transport and administration, because the Czecho-Slovak Republic, as a new State, was not, on the one hand, subject to the provisions of the Bern Convention, and, on the other hand, its railways had ceased to be included in the Union of German Railway Administrations.

It was, therefore, necessary to regulate goods traffic with neighbouring countries by special agreements on rates concluded with the railway administrations. These agreements were naturally based on the Bern Convention with certain derogations due to the post-war situation. As regards relations with Austria and Hungary, the former regulations of the Austro-Hungarian system of operation have been kept in force up to the present.

* The average working weight of wagons in use has increased from 12 to 13.9 tons, as the sugar industry has placed at the disposal of the railway 1,000 wagons (of 20 tons) which belong to it.

These regulations will shortly be replaced by the International Bern Convention, so that from next April the whole of the goods traffic will be carried out under the rules of the Bern Convention to which the Czecho-Slovak Republic has just signified its formal adherence in accordance with the Treaties of Peace.

As the monetary system of Czecho-Slovakia ceased to be the same as that of Austria and Hungary as from March 10th, 1919, it was necessary to abolish the common rates for foreign traffic, and to conclude arrangements with the railway administration of neighbouring countries, so as to enable goods to be despatched as far as the station of destination with a direct way-bill. Such agreements have been concluded with Austria, Germany, Poland, and are in course of preparation for traffic with Yugo-Slavia and Hungary.

Owing to its central geographical situation, the Republic of Czecho-Slovakia is a transit state of great importance, particularly as regards the south-north direction. Recognising this fact, the Czecho-Slovak State Railway Department encourages and endeavours to facilitate transit traffic on its lines. The present temporary difficulties are due solely to the shortage of means of transport, aggravated by the fact that the Austro-Hungarian common park of railway material has not yet been distributed.

The establishment of a direct system of rates with the sea-ports — particularly with Trieste, later on with Fiume and the ports of the North Sea and the Baltic (Antwerp, Hamburg, Bremen, Stettin, Danzig) — is a very complex undertaking.

The direct rates for Trieste, which have been already accepted by the States concerned, will only come into force on March 1st, 1921. Similar rates for the North Sea ports will come into force very shortly.

The policy of the Czecho-Slovak Railway Administration in regard to rates will further aim at facilitating as intensive an employment as possible of the navigable waterways by means of favourable rates, especially in the case of the Elbe, of the Vltava and of the Danube.

As has already been stated, after the Revolution the Austrian rates remained in force in Bohemia, Moravia and Silesia ; the Hungarian rates were maintained in Slovakia and in sub-Carpathian Russia.

These rates were, however, subsequently modified on several occasions, because the situation rendered any far-reaching and final regularisation of these rates impossible.

The deficit on the State railway made it necessary to double the rates ; in this way an appreciable step was made towards re-establishing the relation between the value of the goods transported and the rates charged in respect of them.

(a) *Passenger Rates.*

Rates in force on the former Austrian lines.

1913

Distance	Class 1st	2nd	3rd.
1 — 400 km.	9.0	5.5	3.5
401 — 600 km.	8.5	5.0	3.0
Above 600 km.	7.5	4.0	2.0
Excess for fast trains per km.	2.88	1.76	1.12

1918

	Ordinary Trains			Fast Trains		
	Class			Class		
Distance	1st	2nd	3rd	1st	2nd	3rd
1 — 250 km.	18.00	10.8	7.2	22.5	13.5	9.0
Above 250 km.	13.5	8.1	5.4	16.875	10.125	6.75

From July 1919.

	Ordinary Trains			Fast Trains		
	Class			Class		
Distance	1st	2nd	3rd	1st	2nd	3rd
1 — 250 km.	36.0	18.0	10.8	45.0	22.5	13.8
Above 251 km.	27.0	13.5	8.1	33.75	16.875	10.125

Rates in force on the former Hungarian lines till November 11th, 1917.

	Ordinary Trains			Fast Trains		
	Class			Class		
Distance	1st	2nd	3rd	1st	2nd	3rd
1 — 250 km.	18.48	10.64	5.95	26.18	15.4	10.64
251 — 300 km.	13.2	7.6	4.25	18.70	11.0	7.6
301 — 400 km.	5.28	3.04	1.70	7.08	4.4	3.04
401 — 800 km.	2.64	1.52	0.85	3.54	2.2	1.32

From July 1st, 1919.

Distance	Ordinary Trains Class 1st	2nd	3rd	Fast Trains Class 1st	2nd	3rd
1 — 250 km. . . .	36.96	18.48	10.64	52.36	26.18	15.04
251 — 300 km. . . .	26.4	13.2	7.6	37.40	18.70	11.0
301 — 400 km. . . .	10.56	5.28	3.4	14.16	7.08	4.4
401 — 500 km. . . .	5.28	2.64	1.52	7.08	3.54	2.2

All charges are reckoned in hellers per kilometre.

Luggage Rates.

Charges per unit of 10 kilograms per kilometre.

	1 — 300 km.	Above 300 km.	
In 1912.	0.40	0.30	All Trains
From February 1st, 1917	0.48	0.36	
From December 1st, 1917 . . .	0.72	0.54	
From July 1st, 1919	1.08	0.81	

Parcel Post.

Till the end of 1918: double the luggage charges.

From January 1st, 1919: four times the luggage charges.

When the rates were raised for the second time in June, 1920, the considerable differences between the charges for travellers and luggage in the Czech districts, in Slovakia, in sub-Carpathian Russia and in the territory of Hlutschin were abolished and the rates were made uniform.

In addition, a graduated scale has been introduced, in the first place according to distance:

From 1 km. to 250 km.
From 251 km. to 350 km.
Above 350 km.

next, by dividing the distances into zones:

From 1 km. to 50 km. a zone covers 2-3 km.
From 51 km to 100 km. a zone covers 5 km.
From 101 km. to 250 km. a zone covers 10 km.
From 251 km. to 300 km. a zone covers 25 km.
Above 351 km. a zone covers 50 km.

The charges made for third-class slow trains per passenger and per kilometer for distances up to:

250 km.	were	16 hellers
From 251 km. to 350 km.	»	12 »
» 351 »	»	6 »

The charge for second-class tickets is double that of third class and the charge for first class is double that of second-class.

The fare for fast trains is reckoned by adding a supplement to the fare for slow trains.

The third-class supplement for a fast train, for a distance of:

1 — 100 km. is:	8	Czecho-Slovak	crowns	
101 — 250 km. is:	12	»	»	»
251 — 500 km. is:	16	»	»	»
Above 500 km. is:	20	»	»	»

For luggage the charges are:

Up to 250 km.	1.8 hellers
And for greater distances	1.2 »

per kilometer and per 10 kilograms.

The charges are increased 50 % for the transport of luggage by express trains.

The rate for parcels in express trains is three times that of the rate for luggage.

(b) *Goods Rates.*

The necessity of a uniform scale of goods rates for the whole Czecho-Slovak Republic soon became apparent.

The unified scale for internal goods traffic will very shortly be published. There will be two scales in respect of the transport of goods by express; the lower scale will specially apply to the transport of food-stuffs.

For transport by slow train eight different scales have been established according to the nature, price, volume, etc., of the goods.

In addition several special rates will be put into force.

The following tables show the rates for goods on slow trains travelling within the territory of the Republic during the periods indicated:

1. Goods of high value (1st class); quantity optional.
2. Goods of medium value (2nd class); quantity optional.
3. Goods of various kinds sent in quantities of 5,000 kgs and specified below.
4. Finished goods and various goods in quantities of 10,000 kgs.

5. Made-up produce and goods of various kinds of medium value and raw material sent in quantities of 10,000 kg.
6. Coal for internal consumption in quantities of 10,000 kg.

Goods of high value (1st class) in partially loaded wagons. Quantity optional.

	1. I. 1912	28. X. 1918	1. VII. 1919	16. V. 1920
	Duty levied on 100 kg. and over (in hellers) per km.			
10	29	112	224	448
30	55	199	398	796
70	107	372	744	1,488
100	146	500	1,000	2,000
150	209	709	1,418	2,836
250	326	1,097	2,194	4,388
400	506	1,693	3,386	6,772

Goods of medium value (2nd class) in partially loaded wagons. Quantity optional.

	1. I. 1912	28. X. 1918	1. VII. 1919	16 V. 1920
	Duty levied on 100 kg. and over (in hellers) per km.			
10	27	77	154	308
30	50	126	252	504
70	96	228	456	912
100	130	303	606	1,680
150	183	420	840	2,536
250	280	634	1,268	3,844
400	427	961	1,922	3,843

Goods of various kinds :

Asphalt, beer, lead, rolled iron, reaping hooks, scythes, agricultural machines, flour (Class A goods).

Transportation by slow train of weights exceeding 5,000 kg. (per km.)

	1. I. 1912	28. X. 1918	1. VII. 1919	16. V. 1920
10	22	58	116	232
30	38	93	186	372
70	70	163	326	652
100	94	218	436	872
150	129	294	588	1,176
250	192	433	866	1,732
400	285	369	1,278	2,556

Finished goods :

Cardboard roofing, clay and cement articles, etc., goods of various kinds, tar, hemp, flax, syrup, iron, etc. (Class B goods.)

	1. I. 1912	28. X. 1918	1. VII. 1919	16. V. 1920
	Transport rates for 100 kg. and over (in hellers). (per km.)			
10	18	49	98	196
30	31	78	156	312
70	55	131	262	524
100	74	173	346	692
150	100	229	458	916
250	145	330	660	1,320
400	208	469	938	1,876

Finished goods :

Small metal shavings, bricks, cement, plaster, fireproof clay, lime, firewood, building timber, fodder, litter, potatoes, beetroot, etc. ; finally, raw produce sent by slow train of more than 10,000 kg. in weight (Class C goods).

	1. I. 1912	28. X. 1918	1. VII. 1919	16. V. 1920
	Transport rates for 100 kg. and over (in hellers). (per km.)			
10	15	42	84	168
30	25	65	130	260
70	45	109	218	436
100	55	31	262	524
150	70	163	326	652
250	90	211	422	844
400	124	284	568	1,136

Coal :

For internal consumption sent in quantities of at least 10,000 kg.

	1. I. 1912	28. X. 1918	1. VII. 1919	16. V. 1920
	Transport rates for 10 kg. and over (in hellers). (per km.)			
10	15	41	82	205
30	24	60	120	300
70	39	90	180	450
100	48	105	210	525
150	61	129	258	645
250	77	160	320	800
400	103	209	418	1,045

Fuel.

The consumption of coal on the Czecho-Slovak railways in 1919 was 864,322 tons of coal and 2,277,878 tons of lignite; in 1920 of was 1,013,937 tons of coal and 3,460,132 tons of lignite.

The quantity of coal consumed per ton carried, which before the war was approximately equal to 130 kg., amounted after the war to 200 kg. and over. This difference is accounted for above all by the quality of the coal used, which leaves much to be desired. Before the war the national industries, especially in N. E. Bohemia and Moravia, were chiefly supplied with coal from Prussian Silesia. As the quantity of coal supplied by the Silesian mines has greatly diminished, it is now necessary to supply these industries, which for the most part cannot use coal of inferior quality, with the best national coal, and the rest has to be burned in railway engines, and this reduces their working capacity and causes damage to the boilers.

This state of affairs has a most unfavourable influence upon traffic and accentuates the existing shortage of locomotives.

Table number 6 indicates the provenance of the coal employed to-day by the Czecho-Slovak State Railways. It will be seen that almost two-thirds of the total amount consumed comes from the lignite basin in Northern Bohemia, the rest from the Ostrava-Karvin (Silesia of Tesin) from the basin of Falknov (North West Bohemia) and from smaller basins in the country. Only 0.6 % comes from Upper Silesia and 0,6 % from Lower Silesia.

TABLE Nº 6.

Origin of the coal supplied to the Czecho-Slovak State Railways.

Basins :	Percentage :
(a) Lignite.	
Most-Duchcov (Northern Bohemia)	65.9
Falknov (North West Bohemia)	8.6
(b) Coal.	
Ostrava-Karvin (Silesia of Tesin)	14.7
Kladno (Central Bohemia)	3.7
Plzen (Western Bohemia)	2.9
Trutnov (North Eastern Bohemia)	1.5
Handlova (Slovakia)	1.2
Brno (Moravia)	0.3
Lower Silesia	0.6
Upper Silesia	0.6
Total	100.0

The price of coal has risen continually both during the war and since.

The price per ton in 1913 was 5.06 crowns for lignite and 14.05 crowns for coal. In 1919 the average price was 51.72 Czecho-Slovak crowns for lignite and 115.60 Czecho-Slovak crowns for coal. These prices rose in 1920 to 160 Czecho-Slovak crowns for lignite and 280 Czecho-Slovak crowns for coal.

Financial Situation.

In the preceeding paragraphs we have described in detail the difficult situation of the Czecho-Slovak railways at the moment of their surrender, and also the efforts made by the Czecho-Slovak administration for maintaining and improving the traffic, in spite of the unfavourable situation.

Naturally this state of affairs has had its effect on the financial situation of the system.

The depreciation of the old Austrian railways during the war is shown from the financial point of view by the low interest on the foundation capital (3 % before the war). This figure fell during the administrative years 1914, 1915 to 0.87 %, in 1916/17 to 0.17 % and in 1917/18 it disappeared altogether to be replaced by a deficit of about 110 millions ; moreover the cost of military transport was shown as under the receipts without ever having been collected.

Thus the administration of the Czecho-Slovak railways took over a system the liabilities of which far exceeded the assets.

In order to maintain the operation of the lines it was obliged to undertake improvements without delay and proceed to considerable expenditure.

It was also necessary to revise the salaries of the staff, who were exhausted by the great length of the war and suffered from the unfavourable conditions of life.

The result is that the budget of the Czecho-Slovak railways is heavily burdened by the cost of repairs of constructional work and new rolling-stock on the one hand, and of increased salaries of staff on the other.

The total credit allocated for constructional work amounts to nearly 300,000,000 Czecho-Slovak crowns in the budget of 1919 and to about 1,350,000,000 Czecho-Slovak crowns in 1920, the programme of work being extended and the prices having increased during these years.

The figure representing allocations and bonuses for the cost of living granted to the staff of the railways amounted.

in 1919	Budget	. . . . .	to	291,900,000	Czecho-Slovak crowns.
in 1920	»	. . . . .	to	422,400,000	» »
in 1921	»	. . . . .	to	670,300,000	» »

It must be added that the number of employees per kilometre has slightly increased, but this increase is proportionately small (from 11.7 to 13 persons).

The total deficit in the budget of 1919 was 240,000,000 Czecho-Slovak crowns and in the 1920 budget this amount increased to 625,000,000 Czecho-Slovak crowns. These two figures include the cost of new constructions ; the extra bonuses to the staff have been included in another budget common to all the ministries.

The 1921 budget presents a slightly more favourable aspect and shows a surplus of 265,000,000 Czecho-Slovak crowns. This budget includes bonuses, but the cost of new constructional work, which will increase the value of the railway, was allowed for in a special budget which is to be covered by a loan.

These budgetary figures do not include interest and amortisation of the foundation capital, which has not yet been fixed by the Reparations Commission.

Final results, obtainable for 1919 only (see Table 7), confirm the outline we have given here. They are more favourable than the figures estimated in the budget and decreased the estimated deficit of 114,000,000 crowns.

TABLE No. 7.

Revenue and Expenditure of the Czecho-Slovak Railways in 1919.

Working Revenue		Sundry and Extraordinary Revenue		Total Revenue	
Czecho-Slovak crowns	hellers	Czecho-Slovak crowns	hellers	Czecho-Slovak crowns	hellers
1,119,245,915	34	82,975,408	04	1,212,221,323	47

Working Expenditure		Extraordinary Expenditure		Establishment Expenditure		Total Expenditure	
Czecho-Slovak crowns	hellers	Czecho-Slovak crowns	hellers	Czecho-Slovak crowns	hellers	Czecho-Slovak crowns	hellers
974,330,048	34	43,145,731	09	329,987,299	53	1,347,465,078	96

As soon as the constructional work necessitated by the abnormal wear and tear during the war and the adaptation to new requirements has been completed, there is reason to expect continuous improvement in the financial situation of the Czecho-Slovak railways unless the system is valued at too high a figure by the Reparations Commission.

II.

INLAND NAVIGATION.

The territory of the Czecho-Slovak Republic is situated on the water-parting of the Central European waters which flow to the North Sea, the Baltic, and the Black Sea. The Elbe, the Oder and the tributaries of the Danube have their sources in the valleys of Bohemia. The volume and in consequence the navigability of these water-courses depends to a great extent upon the manner in which the Czecho-Slovak Republic will exploit this great wealth of water. This fact is of great importance for the sections of rivers declared international by the Peace Treaties, viz, the Elbe, the Vltava below Prague, the Oder below its confluence with the Opava, the Danube below Devin, the Tissa below Tiszabecs, and the Morava below its confluence with Dyje (Thaya), together with its internationalised tributary in the portion which forms the frontier between Czecho-Slovakia and Austria.

Material.

I. *Condition of the Waterways.*

Czecho-Slovakia possesses the following waterways:

(1) The section of the middle Vltava from Budejovice to Prague (190 kilometres).

(2) The international section of the Vltava from Prague to Melnik and the international section of the Elbe from Melnik to the Czecho-German frontier (158.4 km.).

(3) The middle Elbe from Jaromer to Melnik (223 km.).

(4) The portion of the Danube between Devin and the mouth of the Ipola (172 km.).

(5) The portion of the Oder between its confluence with the Opava and the German frontier (17.7 km.).

Grand total 761.1 kilometres.

1. *The Middle Vltava from Budejovice to Prague.*—The middle Vltava between Budejovice and Prague has long been navigable. As early as the 14th century the Emperor Charles IV endeavoured to improve its navigability, and it became the principal navigable river in the South of Bohemia for the transportation of timber. It served the same purpose for boats which chiefly carried salt from Salzburg in Bohemia; later on, this route was put in connection with the first railway with animal traction from Budejovice to Linz, which was established at the beginning of the 19th century.

Although the Vienna-Prague railway, which was built in 1869, was a serious competitor with this waterway, the annual transportation amounted in 1902 to 800,000 tons, of which 500,000 tons was timber.

The valley of the Vltava, which has cut its bed through the mountain range, is distinguished by the beauty of its scenery, but numerous rapids and the unequal depth of the water (averaging 100 cm. per kilometre) cause numerous difficulties to navigation. The State administration has made constant efforts to surmount these difficulties and at periods of mean water level navigation is carried on by means of shallow barges which go right into Germany.

The idea of uniting the Vltava to the Danube by a canal which dates from the 14th century was taken up again in 1890. As a result of a competition the following plans were considered: a scheme for a canal from Budejovice-Gmund-Vienna, and another scheme for the canalisation of the Vltava from Budejovice to Melnik for vessels of 600 tons with 33 locks and 8 tunnels.

The character of the middle Vltava and the fact that its valley is little inhabited—which makes it possible to raise the water level considerably—have given rise to a new plan for a canal from Budejovice to Prague, with 20 weirs 4 to 20 metres in height. It is proposed to employ hydraulic power of about 60,000 h. p.

This scheme has recently been supplemented by proposals of other works intended to retain the surplus of water in the valley itself in 11 reservoirs, of which 7 were formed by powerful dams 35 metres in height and retaining 165 million cubic metres. The river would thus be made navigable for vessels of 1,200 tons. The use of the hydraulic power would be increased to 100,000 h.p. and the level of floods in the lower section of the Vltava and the Elbe would be lowered by several metres by means of reservoirs to be established on the Berounka and in the Sumava. The execution of this scheme would have a favourable influence on the navigability of the international portion of the Vltava and the Elbe even into Germany, where, in months of great drought, navigation is constantly interrupted.

2. *The International Section of the Vltava from Prague to Melnik* is a continuation of the Middle Vltava, and is made navigable for vessels of 600 to 1,000 tons by its canalisation which was begun in 1897 and has just been finished. Two fixed dams and 5 dams with switches and sluices form 7 reservoirs, having a minimum depth of 2.1 metres, equipped with two sorts of lock, one 11 metres in width and 73 metres long, the other 11 metres wide and 225 metres long with falls varying from 1.75 to 8.9 metres. The building of the hydro-electric works is now being proceeded with.

In the section Vranany-Horin, a lateral canal 10 km. long has been constructed.

The Vltava at Prague.—The most difficult question was to provide for the navigability of the section passing through the town of Prague; it was necessary in fact to purchase 31 hydraulic power factories; on the

other hand it was desired to preserve intact the beautiful panorama of Prague, and this required the maintenance of reaches formed by fixed dams. The work for this purpose has been completed during the present year.

The International Section of the Elbe from Melnik to the German frontier. — The Prague-Melnik section has been used for navigation since the Middle Ages, but its small volume of water caused great difficulties during certain periods. It is only below Melnik, where the confluence of the Vltava and the Middle Elbe form the Great Elbe, that navigation is possible as far as Hamburg. Freedom of navigation has been guaranteed for centuries by numerous State agreements, particularly by the Elbe Agreement of 1821, and more recently by the Treaty of Versailles.

The navigability of the river and the proximity of the coalfields of North-Western Bohemia favoured the development of numerous industrial establishments in the valley of the Elbe, and this river became an important artery for the exports and imports of the old Austria towards the North Sea. For this reason the State administration, in the years 1870-78, bought up all the weirs and improved the river by a system of longitudinal dykes, with the result that a depth of 1.8 metres during normal water level was attained in the section between Usti and the Czecho-Saxon frontier. In 1897 it was decided to canalise the Melnik-Usti section, to obtain a uniform depth of 2.10 metres for vessels drawing 1.80 metres; this was done on the Melnik-Lovosice section by means of 5 reservoirs with two sorts of locks 11 and 13 metres in width, and 75 and 225 metres in length respectively.

The construction of the largest reservoir neat Strekov, with a fall of about 6 metres, and of a generating station with a capacity of 16,000 h.p. is at present contemplated and will be completed in about 4 years. The whole of this section is navigable even now as far as Prague for vessels of 1,000 tons.

The navigability of the river in the section from Strekov to the frontier is better than in certain sections downstream.

The section from Lovosice to the Czecho-Saxon frontier is provided with a towing chain.

3. *The Middle Elbe from Jaromer to Melnik.*—The Middle Elbe from Jaromer to Melnik forms a continuation of the Hamburg-Melnik international waterway towards the east of Bohemia. The Vltava is torrential in character with a volume of 50 to 4,500 cubic metres a second, but the Middle Elbe is in the nature of a flat river with a volume of 30 to 1,100 cub. metres per second, and a gradient of 35 cm. per kilometre. It flows through a very fertile level valley, which is subject to inundation over a width of 3 km. There are many towns in the valley, in which the sugar industry is particularly developed; for this reason the law of 1901 (regarding waterways) provided for the regularisation and canalisation of this stream so as to enable it to carry vessels of 600 to 1,000 tons. Works for this purpose have been in process of execution since 1904. A quarter of the distance has been improved; two reservoirs near Melnik and Obristvi have been

completely re-built, four others at Lobkovice, Nymburk, Podebrady and Kolin are in course of construction; a section 12 km. in length is thus already accessible above Melnik to vessels of 1,000 tons. A new bed will be dug for mean and high water levels (150 to 750 cub. m. per second); the distance will thus be shortened by 223 to 180 km., and 20 fixed dams will be replaced by movable dams (cylindrical sluices, bridge or segment pattern) retaining the water in the Melnik-Jaromer section in 32 reaches with a total fall of 94.2 m. (A regular scheme of irrigation is planned for the whole of the territory exposed to floods over an area of 20,000 sq. km.) On this section it will be possible to utilise hydraulic power of 30,000 h. p. The low pressure hydro-electric stations will be joined to the steam generating stations of north east and north west Bohemia and to the system of high-power stations of the Vltava.

These works have, of course, been delayed by the war, but the Government of the Czecho-Slovak Republic is expediting them so that within a more or less limited time the control and canalisation of the river may be completed at least as far as Pardubice, and traffic with vessels of 1,000 tons may become possible.

4. *The International Danube from Devin to Soba.*—By virtue of the provisions of the Peace Treaties, Czecho-Slovakia has become one of the riparian States of the Danube, which gives her the possibility of direct economic relations by water with South-Eastern Europe and the Black Sea.

In the Devin-Soba section the course of the Danube is not of a uniform character. From Devin to Gonyü it is still in a measure torrential, sweeping down a great deal of gravel, and its average fall is 37 cm. per km. Below Gonyü the watercourse assumes the character of a river of the plain, and its fall is suddenly reduced to 10 cm. per km.; this is the beginning of the Middle Danube.

The normal width of the river is 300 metres at the mouth of the Morava near Devin; below the mouth of the Vah it is 450 metres; below Gonyü, the river is navigable for boats drawing 2 ½ metres; above Gonyü, during periods of low water, constant dredging is necessary to ensure sufficient depth for navigation.

In the portion of the Danube along the Czecho-Slovak frontier, preparations are made to deal with high and mean water levels by means of parallel dykes and the closing of numerous branches. The regularisation of the stream at low water by means of submerged dykes combined with longitudinal dykes, which was commenced by the former Hungarian Government, will have to be completed.

The depth of this section is in general 2 metres, except over the shallows, where it falls on an average to 1.2 to 1.4 metres.

The Czecho-Slovak Republic has set up two offices at Bratislava and Komarno which are at work on a scheme for the systematic completion and improvement of the river at low water. Meanwhile dredging is carried on in the shallows by means of dredgers which the Czecho-Slovak authorities have procured through the International Danube Commission. In addition

the present administration is executing the repairs which were neglected during the war. For this purpose the State Administration has raised the credits for these operations from 120,000 crowns, (the sum fixed before the war) to 3,500,000 Czecho-Slovak crowns for the year 1921; and it will commence systematic work as soon as the International Danube Commission has determined the degree of navigability to be attained, and has approved the various plans.

Tributaries of the Danube.—To carry out this scheme it will be necessary to take count of the principal tributaries of the Danube; these are the Morava, the Vah, the Nitra, the Hron, and the Tissa.

The Morava, which is being regularised at great cost in the interior of Moravia, has not yet been regularised in its lower portion where it forms the frontier between the Czecho-Slovak and Austrian Republics. The works undertaken in 1906 have been delayed by the war; the plan for the regularisation of this river will have, moreover, to be carefully reviewed to meet the requirements of the neighbouring States.

The international portion of the Marava is only accessible to small barges and rafts.

On the other tributaries of the Danube there is very important traffic in timber rafts coming from the Carpathian forests. Only a portion of the Vah, about 20 km. above its confluence with the Danube, is navigable for vessels.

The Tissa is navigable below Tisa-Becs.

The Government of the Czecho-Slovak Republic will naturally endeavour not only to maintain the present state of navigability, but also to undertake the canalisation of the Vah from its mouth up to Zilina, and the canalisation of the Hron as far as Zvolen. The same applies to the improvement of the Tissa in the part of its course flowing through Czecho-Slovak territory.

5. *The Oder.*—The internationalised section of the Oder, which flows for 17.7 km. through Czecho-Slovakia, has a depth of 1 ½ metres and a width of 50 to 60 metres, and a fall of 0.6 metres per km. Further downstream, where it flows through Lower Silesia (22.6 km), the Oder is navigable for small rafts as far as Ratibor; and from there is navigable for boats and tugs. From Kosel the Oder is already canalised for barges with a draught of 1.70 km. and a capacity of 500 tons. The Czecho-Slovak administration intends to canalise the portion traversing its territory, if Germany decides to continue the canalisation of the Oder above Kosel as far as the Czecho-Slovak frontier (64 km.).

In this way direct communication by water will be established for the Czecho-Slovak Republic, with the port of Stettin, where, in accordance with the Treaty of Versailles, a free zone has been reserved for it.

6. *Schemes for Canals.*—The law of June 11th, 1901, already quoted, provided for the construction of the following canals:

(1) Canal connecting the Elbe and the Danube, with branch to the Oder and the Vistula;

(2) Canal connecting the Vltava with the Danube;

A scheme has recently been discussed for a canal connecting the Vltava, Berounka, Maine and Rhine.

By the above-mentioned law regarding waterways, which was dictated primarily by political reasons, the former Austrian Government endeavoured in the first place to secure advantageous transportation for the coal from the mining district of Ostrava to Vienna. For this reason it drew up the scheme for the Danube-Oder canal Vienna to Moravska-Ostrava, part of the land for which was purchased. As regards the other canals, only preliminary investigations were undertaken. Nevertheless, Bohemia succeeded in having the work of canalising the Elbe and the middle Vltava at Prague begun at the same time, operations forming part of the general programme contemplated by the law.

Canal between the Elbe and the Danube.—Owing to the new circumstances caused by the change of the political regime, the Czecho-Slovak Republic is now greatly interested in connecting the Elbe with the Danube via Pardubice-Prerov-Devin, with a branch to the Oder near Oppeln, and to the Vistula near Cracow. For this reason the administrative authorities of the Republic, immediately after the change of regime, began to plan a canal from Pardubice on the Elbe to Prerov on the Marava, and undertook to modify the plan of the canal from the Danube to the Oder, the Prerov-Vienne section of which had already been planned in detail by the former Austrian Government.

The proposed canal would have a total length of 325 km.

There will be 47 locks for vessels of 670 tons, allowing for a volume of traffic up to 10 million tons per annum. It has been decided to keep the branch of the canal from Prerov to the Oder.

Canal from the Vltava to the Danube.—Two different schemes have been advanced for the canal from the Vltava to the Danube—the scheme proposed by the Committee on the Vltava-Danube canal, the line of which passes from Budejovice via Gmund to Korneuburg (near Vienne), and the plan for a canal from Budejovice or from Vyssi Brod to Linz, which involves the use of mechanical elevators.

As the interests of Czecho-Slovakia require that the canal connecting the Elbe with the Danube should cross as much as possible of its territory, the Government has decided first of all to proceed with the plan of a canal from the Elbe to the Danube from Pardubice to Devin, as this would seem to be most advantageous for international commerce and would present least technical difficulties in construction. The scheme to connect the Vltava with the Danube has accordingly been postponed until the middle Vltava has been canalised.

A scheme has recently been discussed for a third canal connecting Czecho-Slovakia with the western States via the Vltava and the Berounka, through the Seruby pass, Bavaria and so to the Rhine and the Danube.

II.—*Condition of Ports.*

Ports and Transhipment Stations on the Vltava.—After the enactment of the Elbe Act in 1821, by which freedom of navigation was secured, navigation rapidly developed, so that the necessity for ports became urgent. In 1822 the Prague Sailing Navigation Company (Prager Segelschiffahrtgesellschaft) established a port at *Karlin* (suburb of Prague). Towards 1890 this port was rebuilt by the State and provided with wharves and a travelling crane. At present it has an average width of 32 metres, a length of 500 m. and a depth of 1.80 m., and will hold 20 Elbe vessels. After the War the Czecho-Slovak Administration equipped it with three electric cranes.

In 1892 and 1894 the State built at *Holesovice* (Prague VII) a wintering and refuge harbour capable of sheltering 80 Elbe barges. In consequence of the canalisation of the Vltava below Prague, the port was deepened to 2.10 m., connected with the railway and provided with the requisite cranes; it has thus been transformed into a commercial port. At the same time the Commune of Liben (Prague VIII) built the port of Liben which shelters 20 Elbe vessels.

In 1868 the State constructed, above Prague, the port of Podoli (suburb of Prague) as a harbour of refuge, and in 1900 it also constructed at Smichov (suburb of Prague) a harbour for rafts with a transhipment station 1 ½ km. long, connected with the State Railway. The importance of this will soon become evident in view of the fact that the canalisation of the Vltava in Prague has now been completed.

On the rest of the course of the Vltava below Prague special mention must be made of the transhipment station at Kralupy, which is connected with the railway from Bûstêhrad.

Ports and Transhipment Stations on the Elbe.—At the confluence of the Elbe and the Vltava stands the port of Melnik, which is connected with the railway and provided with a crane installed after the war.

Most of the ports, however, are grouped on the great Elbe near the German frontier.

The Commission of Revision, established in 1821 under the Elbe Act, afterwards recommended the construction in Bohemia of winter ports on the Elbe. The installation of landing stages, stations and stopping places on the Elbe began in 1850; it was chiefly the railway companies who constructed, at various points of the river and at their own expense, a large number of paved embankments and masonry quays. These works, which were intended for transhipment, were increased in proportion to the development of traffic. Towards 1857 docks of this kind were constructed by the State at Rozbolesy and Lovosice. The first of these, which now measures 89,300 sq. m., is situated next to a great unloading quay, which is connected with the Duchov-Podmokly Railway.

The port of Lovosice was soon abandoned and is no longer used. On the other hand, the canal below the lock-derivation at Lovosice was

improved ; rails were laid there in 1914, and it was connected with the State Railway. During the war it was much used for the transhipment of goods and part of the coal for the City of Prague. In 1912 the transhipment station was built at Litomerice ; this will be connected with the North-Eastern Railway.

At Usti (Aussig) there are two harbours ; the first, built by the Usti-Teplice Railway Company in the years 1864 to 1867, now has an area of 43,700 sq. m. The second harbour, 49,700 sq. m., was built there in the years 1889 to 1891. Both are connected by the Usti-Teplice Railway with the lignite basin and industrial region in the North-east of Bohemia. The same railway is connected below Usti with great unloading stations of a total length of 4,500 m., where, before the war, 1,000 to 1,200 10-ton trucks of coal were transhipped daily. Mention must also be made of another unloading station above Usti, 450 m. long, provided with wharves and the necessary equipment for the transhipment of goods in small quantities. At Krasne-Brezo, above Usti, a transhipment station has also been established, 870 m. long.

In 1866 a port was built near Dêcin (Teschen) which in 1869 was provided with a high quay and connected with the Northern Railway.

The most important transhipment-station on this part of the Elbe is at Loubi (Laube), with a length of 3 km., situated below Decin and connected with the North-Eastern State Railway.

During the war the ports of the Vltava and the Elbe and their wharves were congested with traffic, while no attention was paid to their normal up-keep. Moreover they have no modern equipment, so that they by no means satisfy present requirements. The existing installations must be modernised, especially in the ports of Loubi and Decin, and the ports of Central Bohemia must be provided with the machinery necessary to cope with the requirements of navigation, which is continually increasing.

Schemes for Harbours of Refuge and Winter-Harbours.—Between Prague and the German frontier there are, in a stretch of 158 km., three ports of refuge—at Prague, Usti and Rozbelesy. The distance from Prague to Usti is 120 km. and it has been decided to establish a new port near Melnik, 50 km. below Prague. This port will provisionally consist of a dock 530 m. long and 80 m. wide and will hold 60 vessels ; its construction is to be begun in the course of the present year. Provision is made for enlarging this port by a second dock.

To relieve congestion at the ports of Usti and Rozbelesi it will probably be necessary to construct another winter port near Rasseln for 20 vessels. The plans for this work were already drawn up by the former State Administration.

Scheme for a large Port at Prague.—Prague being the capital of the State and also the terminus of the navigable waterway connecting the city with the North Sea, a large port and a central goods station on the river bank must be established there, in order to cope with future traffic needs. Under the plan recently drawn up, these will be built in the town, on ground

hitherto subject to inundation, with a surface area of about 800,000 square metres, which has been reclaimed by shifting the bed of the Vltava.

The scheme includes a customs port 430 metres long, 37,000 sq. metres of warehouses, a coal dock 800 metres long, with depots covering an area of 52,000 square metres ; a heavy-goods dock 500 metres long with 25,000 square metres of warehouses ; also the harbour of Karlin, 900 metres long and 7,700 square metres in area with a capacity of 10 vessels. All these docks are 50 metres wide and 25 metres deep. A ship-building yard would also be established.

The goods station will include a warehouse for retail goods, a custom house and a coal station connected with the coal port.

Further, it is proposed to establish transhipment-stations of a total length of 3,300 metres, some of which will be particularly designed for unloading petrol products and building materials.

The total cost of constructing the port will amount to 82 million Czecho-Slovak crowns ; this would be covered for the most part by the value of the ground thus reclaimed or improved, which to-day is subject to inundation.

Ports on the Danube.—In the former Hungarian Kingdom, ports now situated on Czecho-Slovak territory were for the most part only of local importance, serving only the adjoining Slovak territory. These ports were Bratislava, Komarno and Parkan.

Towards the end of 1918, the port of *Bratislava* consisted of unloading-stations situated on the left bank of the Danube and with an available length of 1,500 metres. There were three sheds belonging to the Danube Navigation Company (D. D. S. G.) and two masonry storehouses belonging to the Hungarian Maritime and River Navigation Company (M. F. T. R.). Moreover coal depots had been erected to provide for the needs of these two navigation companies. A railway has been installed along the quay and is connected with four shunting lines. It was only during the war that unloading by hand was replaced by a travelling bridge crane with a capacity of 30 wagon-loads per day, intended principally for handling war material.

Besides these unloading-stations properly so called, a winter port was established in 1904, composed of 2 basins with an average width of 90 and 140 metres and a length of 700 and 600 metres respectively, with a total capacity for 250 barges.

The port of *Komarno* was built on the left bank of the Danube in a secondary branch protected by a dyke against the river at average water level. It also serves as a winter port with a capacity of about 300 vessels. Its banks are strengthened by stone paving supported by an enrockment. It contains 4 private warehouses with a total capacity of 160 wagon loads, and a line of railway connects it with the Nové Komarna station. Transhipment is carried on entirely by hand.

The port of *Parkan* was entirely local in character. It had no plant and was not even connected with a railway.

The creation of the Czecho-Slovak Republic invested these ports with new importance, and they are destined to become centres of extensive trade with Hungary, the Balkans, South Russia, Asia Minor and all the other countries of the East and South.

At Devin, a town situated at the mouth of the Morava and of the future canal connecting the Elbe and the Danube, it is proposed to construct a port for heavy goods such as coal, ore, etc. The principal mercantile port of the Danube will naturally be at Bratislava. Komarno will be of less importance. Finally an industrial port will probably be established at Parkan. All these ports will be connected with each other by a double-track railway, in order that smooth working and a maximum output may be assured by a prompt and efficient distribution of the goods in each of these three ports. The connection of these ports with all parts of the State territory is already assured by two double-track lines of railway.

When all these schemes have been carried out, an output of 3 million tons per year may be expected from the port of Bratislava, while that of Kamarno is only estimated at one million tons. The port of Devin will be built subsequently.

The execution of this programme, to which five years will be devoted, will involve expenditure estimated at 225 million Czecho-Slovak crowns for the port of Bratislava, and 190 million Czecho-Slovak crowns for Komarno.

III.—*Condition of the Fleet.*

The Vltava and the Elbe.—The former Austrian State endeavoured, by favourable rates and subsidies granted to transportation enterprises, to direct its foreign traffic to Trieste, which was its only seaport. This policy and the prolonged rate-war between the navigation companies of the Elbe, resulted in arresting the development of navigation on the Elbe, which at first had been very active. The navigation companies and the private owners in Bohemia therefore endeavoured to unite with the companies of Germany, where inland navigation found ready support from the Government ; in this they finally succeeded. Consequently, no navigation company of any importance remained on the territory of old Austria, although the transport of Czech products accounted, before the war, for 33 % of the total transport on the Elbe.

As a result, there is very little shipping belonging to Czecho-Slovak subjects.

The following table shows the present state of river shipping on the Vltava and Elbe as registered in Czecho-Slovakia.

Owners	Steamers	Barges	
		Number	Tonnage
Private Owners.....	—	72	30,650 tons
Sugar Factories.....	—	16	4,340 ,,
Barges belonging to private owners and to the Municipality of Prague	—	29	2,810 ,,
North-Western Navigation Company of Vienna ...	15 tugs 9 towing boats	114	78,880 ,,
Vltava & Elbe Tonnage Company	14 tugs	—	—
Building Society A. Lanna Share Company.....	6 tugs [1]	—	—
Prague Navigation Co. (for passenger traffic) ..	7 ships carrying 800 passengers 14 ships carrying 100-200 passengers	—	—
Total...	65	231	116,680 tons

Danube Flotilla.—Already, before the war, Czech trade towards the East and South-East made use of the Danube. It was in particular the ports of Vienna, Linz and Ratisbon which received and despatched goods from Bohemia, Moravia and Silesia. Budapest was the principal shipping centre for Slovakia. The goods were carried by the Bavarian, Austrian and Hungarian navigation companies.

After the war, Czecho-Slovakia took her place among the Danube riparian States. As, however, she has at present no national flotilla, she has to make use of boats hired from "The First Danube Navigation Company" of Vienna, (5 tugs of 500-1,000 h. p., 41 barges of 300-700 tons and 4 tank boats), and from the "Serbian Navigation Syndicate" of Belgrade (4 tugs and 24 barges). In addition, use is made of 20 lighters belonging to the Hungarian Company (M. F. T. R) repaired in the shipyards at Komarno.

The Republic of Czecho-Slovakia expects that part of the Danube flotilla will be allotted to it under Article 300 of the Treaty of Saint-Germain and similar articles in the other treaties of peace. Pending the decision of the American arbiter on this matter, new ships are being built.

Oder Flotilla.—The former Austrian Empire did not make use of its own shipping for transportation on the Oder, although it accounted for 18% of

[1] Only used for transporting building materials.

the total traffic on this river. All the boats on the Oder belonged to German subjects[1]. It has not been possible to make any change in this state of affairs up to the present.

Traffic.

I.—*Navigation Service.*

Vltava and Elbe.—The Navigation companies and private navigation enterprises which take part in the Czecho-Slovak traffic on the Vltava and Elbe may be divided into two groups.

1. *Czecho-Slovak Navigation Firms:*

(a) The Prague Vltava and Elbe Navigation Company exclusively engaged in local passenger traffic on the Vltava in the neighbourhood of Prague and between Prague and Melnik.
(b) Elbe and Vltava Towage Company at Prague.
(c) Small private owners and two sugar factories.

2. *German Firms:*

There are several German Navigation Companies possessing 183 tugs and 1274 larges including:

The Austrian North-West Steamship Company of Vienna.
The United Elbe Shipping Company.
The German-Austrian Steamship Company of Magdeburg.
The New German-Bohemian Elbe Steamship Company of Dresden.
The Saxon-Bohemian Steamship Company of Dresden.

In addition to these companies, several thousand private German owners took port in the Czecho-Slovak traffic.

Danube.—There is as yet no Czecho-Slovak navigation company on the Danube. It was the State Authorities themselves who in 1919 established at Bratislava the Czecho-Slovak Danubian Navigation Office (Czechoslovensky dunejsky dopravni urad) which carries on transport on the Danube with boats hired from foreign navigation companies.

II.—*Passenger Traffic.*

It is very difficult to give precise statistics for the development of traffic in Czecho-Slovakia, because inland navigation only began after the war, and could not develop owing to the lack of national shipping.

[1] According to official statistics, there were in all on the Oder 350 tugs, and about 4,400 barges, all registered in different German ports, with a total tonnage of 1,200,000 tons.

For the same reasons it is impossible to give precise information for the years 1919 and 1920.

The Vltava and Elbe.—Before the war, the Czecho-Saxon Navigation Company carried passengers on the Elbe, between Litomerics (Leitmeritz) and Dresden (65 kilometres of this route are in Czecho-Slovakia). This Company carried:

In 1913	2,808,695	passengers
In 1914	1,754,488	»
In 1915	1,375,035	»
In 1916	1,364,587	»
In 1917	1,194,619	»
In 1918	1,324,304	»

and at the same time its passenger ships carried luggage amounting to 13,287 tons in 1917 and 14,149 tons in 1918.

The Prague Navigation Company's passenger traffic on the Vltava, between Prague and Stechovice, was as follows:

In 1918	1,141,509	passengers
In 1919	1,864,120	»
In 1920	2,094,840	»

The Danube.—Two foreign companies, one Austrian (D. D. S. G.) and one Hungarian (M. F. T. R.) are responsible for the passenger traffic on the Danube between the Czecho-Slovak ports.

III.—*Tonnage of Goods.*

The Vltava and Elbe.—Goods traffic on the Elbe and Vltava (between Prague and Hamburg) during the five years from 1909 to 1913 is shown by the following figures:

Year.	Inland Traffic.		Foreign Trade.		Total Traffic in Tons.
	Vltava.	Elbe.	Imports.	Exports.	
1909.....	141,000	207,000	717,000	2,632,000	3,697,000
1910.....	122,000	290,000	702,000	2,411,000	3,535,000
1911.....	128,000	233,000	575,000	1,626,000	2,562,000
1912.....	99,000	225,000	881,000	2,403,000	3,608,000
1913.....	110,000	236,000	783,000	2,358,000	3,487,000

No exact information is yet to hand for the post-war period. For 1920 the statistical bureau estimates the total traffic on the Elbe in Czecho-Slovakia at one million tons. The decrease is explained by the general post-war economic situation, and should be considered as temporary.

The Danube.—Statistics concerning pre-war traffic on the Danube are even more difficult to obtain than in the case of the Elbe; accurate information as to the goods traffic is wanting.

Before the war, goods traffic in the port of Bratislava was estimated at an average of 30,000 tons per year. As regards the port of Komarno, we have no information, even approximate, concerning its traffic.

After the war, from October 15th to December 31st, 1919, traffic in the port of Bratislava amounted to 22,167 tons, of which 16,210 tons were handled by the Czecho-Slovak Danubian Navigation Office. In 1920 the total traffic in this port reached 160,796 tons, half of which was handled by the same office. The goods traffic in the port of Komarno was very small: 3,388 tons from the 15th October to the 31st December, 1919. In 1920, however, it reached 31,400 tons.

Oder.—Navigation on the Oder is of importance to the Republic of Czecho-Slovakia, as it affords a means of communication with the Baltic States. The principal traffic down the Oder was in iron and ironwork from the blast furnaces in the Ostrova-Karvin district. Upstream, the cargoes generally carried were ore from Sweden, shipped to the blast furnaces at Vitkovice, and sea-fish, raw hides etc.

Before the war, imports from Sweden amounted to 800,000 tons, the greater part of which were brought from Stettin by the Oder as far as Kosel, and thence by rail. Prior to the war Czecho-Slovakia was responsible for 18 % of the total traffic.

Fuel.

All vessels in use on the Elbe and the Danube use coal as fuel. The distribution of coal is still under State control. The responsible department of the Ministry of Public Works allots 15,150 tons per month of lignite from the coal district of Northern Bohemia for Czecho-Slovak transport on the Elbe; and 5,000 tons per month of coal from Morovska Ostrava for use on the Danube at a cost of 18 Czecho-Slovak crowns for lignite and 48 crowns for ordinary coal per 100 kilogs delivered at the mine. As far as is possible, and on special request, coal is also furnished for other transportation purposes at the export price. It is true that the quantity of coal delivered up to the present has not sufficed to meet the demand, but the present output of coal did not permit a large supply.

III.

MARITIME NAVIGATION.

Maritime Ports.—In accordance with Article 363 of the Treaty of Versailles Germany will lease to the Czecho-Slovak State, for a period of 99 years, sites in the ports of Hamburg and Stettin, which will be placed under the general régime of free zones and will be set apart for the direct transit of goods coming from or going to Czecho-Slovakia.

The negotiations between the Czecho-Slovak Government and the German Government with regard to the free zones in these ports will be entered upon shortly. Meanwhile Czecho-Slovak traffic, for which at present no national maritime fleet is available, is temporarily utilising such plant as is generally accessible in the ports of Hamburg and Stettin.

Besides these two free zones for northern maritime traffic, the Czecho-Slovak State is greatly interested in the traffic on the Adriatic Sea, railway communication with which has been assured to her by the Treaties of Peace. Trieste is the outlet for part of her traffic with the Far East. For this reason the Czecho-Slovak Government, by a Treaty of November 1920 concluded with the Italian Government, has obtained the use of sheds and plant for transhipment in the port of Trieste, and also of coal depots and other facilities for direct transit.

Moreover the Czecho-Slovak Republic will take all necessary measures to inaugurate maritime trade on the Black Sea and thus to secure communications with the countries on its coasts, countries with which her inhabitants maintained close commercial relations before the war.

Maritime Fleet.—At present the only sea-going ship under the Czecho-Slovak flag is the *Legie* (Legion), which trades with the Far East. Prague is its port of registration, and Trieste its port d'attache. This ship has a tonnage of 8,000 tons and is the property of the "Bank of the Czecho-Slovak Legionaries."

IV.

MOTOR AND AIR TRANSPORT.

There are about 5,000 motor-cars of all kinds in Czecho-Slovakia. There was very little carriage of goods by motor before the war it is only since the war that this form of transport has begun to develop. Up to the present passenger motor-traffic is confined to the richer classes, owing to

the excessive price of motor-cars and of the materials necessary for their upkeep.

Motor-omnibus transport is also beginning to develop. At present the Ministry of Posts and Telegraphs make the principal use of this form of transport. In the middle of 1920, 23 lines, covering 627 kilometres in all, were being worked.

* * *

In 1920, the Air Service Prague-Paris (about 900 km) was established. This service is maintained by "The Franco-Roumanian Aerial Navigation Company", subsidised by the State, which built the aerodrome at Kbely (near Prague) and equipped the one at Cheb (Eger). Transport was started in September 1920 but had to be interrupted during the winter. The regular service will be resumed in March or April 1921. The time needed to fly from Prague to Paris or vice-versa is from 5½ to 6 hours.

During the course of 1921, services will be established between Prague and Warsaw (about 500 km.), also under the management of the Franco-Roumanian Company. Preliminary work on this route has already begun.

In addition, the establishment of air services from Prague to Berlin, Prague to Vienna, and a home service from Prague to Bratislava and Kosice is being considered.

DENMARK.

I.

RAILWAYS.

The following table gives particulars with regard to both the State and private railways. As regards private railways, it should be added that the consumption of coal on these lines will amount to approximately 110,000–115,000 tons per year. In 1920 about 80,000 tons of coal and about 23,000 tons of peat were consumed, the latter amount being equivalent to about 10,000 tons of coal. It should also be observed with regard to the private railways that the net results have been very unsatisfactory during the last few years.

II.

MARITIME AND WATERWAY NAVIGATION.

As regards the Maritime and Waterway Navigation, it should be pointed out, under the heading "Material", that the Danish ports are in as good condition as before the war, and that important works have been carried out during the war for enlarging and deepening them.

In the port of Copenhagen, the length of quays at the beginning of the war amounted to 28,200 metres; by the end of 1921 this distance will have been increased by 6,395 metres.

The distance across the port from the entrance at Trekroner to the lock at Kalvebo Strand is 8,4 km., and the distance between the northern and southern boundaries of the port is 13 km.

The area covered by goods-depots in the Free Harbour amounted before the war to about 120,000 square metres; at present it is about 160,000 square metres.

In the Customs Harbour new goods-depots have also been built during the war, but these are private property.

* * *

As regards freights, these have conformed to the general tendency of rates all over the world.

The condition of maritime navigation was satisfactory during the war ; but, as in all other countries, there is, at present, a certain deflation ; vessels are remaining in port or are being worked at a loss.

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* *

The number of motor-transport vehicles was about 720 on September 1st, 1914 ; on September 1st, 1920, it was about 3,800.

Last summer permanent air-services were instituted between Copenhagen and Warnemunde (and thence to Berlin), and between Copenhagen and Hamburg (with connection for London).

Owing to the prohibition issued by the Allies against German aviation outside Germany, the future of these services is very uncertain.

Permanent air-services have not yet been instituted within the frontiers of Denmark, but a certain number of occasional flights have taken place.

The State has set apart an area of about 310 hectares on the eastern coast of Amager, near Copenhagen, for the creation of an aerodrome which will contain the necessary installations for hydroplanes, aeroplanes and airships.

Summary of Balance Sheets for

April 1st, 1913, to March 31st, 1914, and April 1st, 1919, to March 31st, 1920.

State Railways.	1913-1914	1919-1920
I Plant :		
(a) *Length of lines.*		
Belonging to railways operated by the State	98,7 km.	98,7 km.
Double track	358,0 »	286,4 »
Single track	1,741,8 »	1,821,1 »
Length of distances served by steam ferries or vessels	215,0 »	170,0 »
Steam ferry services (home)	5	5
Steamship services (home)	0	1
Steam ferries to foreign port:		
Germany	1	1
Sweden	2	2

State Railways *(continued)*.	1913-1914	1919-1920
Steamship services to foreign Port: Germany	1 km.	0 km.
Denmark supplies the ferries on one of the steam ferry lines to Sweden, while Sweden supplies the ferries on the other line. The steam ferries for the service to Germany are supplied by both countries.		
(b) *Condition of the lines:*		
The lines, bridges, viaducts, etc., are always maintained in good condition in order to ensure safe operation.		
(c) *Improvements:*		
Double-track lines for which credits have been granted . . .		331,4 km.
State railways under construction		177,5 »
(d) *Rolling-stock:*		
Number of locomotives	629	651
Number of passenger coaches . .	1,606	1,732
Number of seats.	75,516	84,529
Number of mail and luggage vans	444	513
Number of goods trucks	9,664	10,812
Capacity of luggage vans and goods trucks, in tons	107,072	133,028
Number of vessels	8	7
Number of ferry-boats (steam) . .	23	25
Tonnage of vessels and steam ferry-boats; about	9,510	9,970
II. Traffic:		
(*a*) Kilometres run by passenger and goods trains	14,595,862	12,141,700
(In 1919-1920, as in preceding years, there has been a slight reduction in the quantity of train traffic.)		

State Railways *(continued)*.	1913-1914	1919-1920
b) Number of passengers . . .	23,690,045	31,723,390
Goods, luggage and live stock conveyed (in tons)	6,289,750	8,203,951
III. Rates :		
Increase in passenger fares. . .	0	100 %
Increase in goods rates	0	200 %
IV. Fuel :		
a) Consumption of fuel : trains and steam ferries (in tons) .	267,719	329,620
b) Net cost per ton . . . . Kr.	20,8	121, 4
It has been difficult to secure the requisite fuel supply.		
V. At present, owing to higher wages and the increased price of material, especially coal, the financial situation of the State Railways is very unsatisfactory.		

Privately owned Railways.	1913-1914	1919-1920
Total length	1,845,09 km.	2,226,6 km.
State railways operated by private companies	86,0 »	55,8 »
Number of locomotives		293
Number of seats		28,449
Total capacity of goods trucks, tons		39,552
Number of journeys	10,295,190	14,054,884
Goods and live stock carried, tons	3,031,227	4,248,333

ESTHONIA.

I.

RAILWAYS.

A. Material.

Esthonia, which was proclaimed an independent Republic on February 24th, 1918, was subjected immediately afterwards to the German invasion, and up to November 13th, 1918, the date of the withdrawal of the German troops, its Provisional Gouvernment was unable to take any steps with regard to the reorganisation of transport or, indeed, of any other of the economic activities of the country. As the country was immediately afterwards involved in a defensive war against Bolshevik Russia—a war for which she was obliged to mobilise all the forces and resources of the country—the national administration of railways had great difficulty in maintaining the normal traffic of its system.

It should be remembered that during the occupation the German authorities had deprived Esthonia of the greater part of her wagons, locomotives and rolling stock, the value of which at pre-war rates was estimated at 36 million German marks.

On October 1st, 1920, Esthonia had 651 kilometres of railways with a gauge of 1 m. 524 mm., and 340 kilometres of lines with a narrow gauge of 750 mm.

The railway system was equipped with 340 small bridges of 10 to 20 metres' span; 12 bridges of 20 to 42 metres' span, and one bridge over the River Narova measuring 141 metres in length. This bridge, as well as 62 other bridges, was destroyed during the war with the Bolsheviks and has subsequently been rebuilt.

On October 1st, 1920, there were 120 locomotives, including 52 under repair on the broad-gauge lines; the total number of wagons on these lines was 4,083, including 623 under repair. On the narrow-gauge lines (750 mm.) there were 89 locomotives, of which 43 were under repair, and 2,474 wagons, including 237 under repair. The repairs are carried out in the workshops of Reval, Valk and Moisekull.

Several new lines are under construction or have been projected, including:

(a) A direct line from Reval to Moscow. Esthonia was granted a concession for this line in accordance with the Peace Treaty with Russia, and the plans for the portion within the frontiers of Esthonia were completed last summer.

(b) A line, which is also to be constructed, starting from the western extremity of the Isle of Oesel, connecting the towns of Parnau, Wiljandi and Tartu, and finishing at Smolensk ; it will thus constitute the most direct route from the Baltic to South Russia, the basin of the Donetz, and the Caucasus.

The course of these two lines, which are of more than local importance, was fixed last summer ; some of the narrow-gauge portions and some branch lines required for forestry operations have been constructed.

The employment of the Narova waterfalls, capable of furnishing 60,000 h.p. for the electrification of the railways is, also under consideration.

As the execution of these projects is beyond the financial resources of Esthonia, the country will be obliged to conclude a foreign loan, or to grant concessions. In the meantime the Railway Administration will have to employ almost the whole of its resources in order to improve the existing lines and the condition of the rolling stock.

The value of the Esthonian railways, without counting the rolling stock, was estimated on January 1st, 1920, at 1,356 million Esthonian marks. This calculation is based on pre-war Russian statistics, in which one kilometre of broad-gauge line had an estimated value of 50,000 gold roubles and one kilometre of narrow-gauge line was valued at 25,000 gold roubles. Gold roubles are then multiplied by 37,5 in order to obtain the corresponding value in Esthonian money.

As the price of wood fuel and of all necessary commodities rose continually during the year 1920, and as wages have been repeatedly raised, the sums estimated for in the Budget have proved insufficient for present requirements.

The Budget for the year 1921 has been fixed at 755 million marks, allowing for a deficit of 60 millions. The Government will ask for a supplementary credit of 233 million marks for new constructions and the purchase of necessary material.

As the Esthonian railway system was constructed with a special view to transit traffic with Russia, it is clear that, when this traffic is practically at a standstill—as is the case to-day—the same revenue as in normal times cannot be expected.

B. Traffic.

It is extremely difficult, if not impossible, at the present time, to give an exact and representative idea of the traffic on Esthonian railways. The Treaty of Peace with Russia was only ratified on March 30th, 1920, and the demobilisation of the Esthonian troops was completed at a much later date. For this reason the past year may be considered for our purposes as a year of war.

The number of train-kilometres during the eleven months of 1920 (the figures for December are not yet to hand) was as follows ·

On broad-gauge lines: 1,817,254 or 165,205 per month (an average of 7 trains per day) ;

On narrow-gauge lines: 1,360,311 or 123,665 per month (an average of 10 trains per day).

The number of passengers during the twelve months was as follows :

On broad-gauge lines : 1st class, 197,941 (or 6,83 %) for an average length of 99,08 kilometres ; 2nd class, 2,700,606 (or 93,17 %) for an average length of 65,45 kilometres.

This gives a total of 2,898,547 for both classes.

On narrow-gauge lines: 1,192,700 for an average length of 22.1 kilometres.

Goods traffic was as follows :

Broad-gauge Lines.

Express Trains :	No. of Consignments.	Tonnage.	Average in kilometres.
Private consignments	13,320	3,823	136
Government consignments	274	247	119
Military consignments	2,101	3,953	125
Official railway consignments	1,104	1,399	35
Total :	16,799	9,422	116
Slow Trains :			
Private consignments	108,023	487,160	131
Government consignments	2,791	27,310	101
Military consignments	17,637	67,619	104
Official railway consignments	6,019	101,653	101
Total :	134,470	683,742	123

Narrow-gauge Lines :

Express Trains	2,070 tons.
Slow Trains	415,960 tons.

C. Regulations.

No fresh law with regard to railways having been promulgated in Esthonia, the railways continue to be administered according to the laws and provisions which were in force in the former Russian Empire.

D. Fuel.

It should be mentioned that in 1920 the situation of the Esthonian railways was rendered very difficult owing to the impossibility of supplying them with sufficient fuel.

Until the month of July 1920, the locomotives could burn nothing but wood. It was only after that date that schist began to be partially employed as fuel. As the new firms dealing in schist were not in a position to furnish the tonnage necessary for the requirements of the railways, the administration itself took over the working of this enterprise, but their installations are not yet sufficiently advanced to produce the required output. As, moreover, it has not proved possible to receive coal from abroad, although several insufficient tenders have recently been received, wood firing has been used as a substitute.

During the year 1920, the expenditure on fuel for locomotives amounted to 71,400,000 Esthonian marks, *i.e.*:

$$\frac{71{,}400{,}000}{310{,}256{,}636} = 23\ \%\ \text{of the total expenditure.}$$

E. General Situation.

There are two railway systems in Esthonia. One includes all the broad-gauge lines and 79 kilometres of narrow-gauge lines, and is the property of the Esthonian State Railways. The second, which comprises 261 kilometres of narrow-gauge lines, is the property of a private company which before the Revolution owned several other lines situated in different parts of Russia. Owing to the absence of any representative of this company, the Esthonian Government has been obliged to take over the administration of this system until the situation is finally regularised.

The narrow-gauge lines, which, as has been said, were constructed to meet the requirements of the countries through which they pass, carry more traffic (ten trains per day) than the broad-gauge lines (seven trains per day) and their financial situation is consequently more satisfactory. These lines have recently been able to cover their expenses by their receipts, but as they have been obliged to incur expenditure for the repair of their tracks and material and the reconstruction of bridges and stations which have been destroyed, they have been obliged to have recourse to a considerable loan which is not guaranteed by the Government.

The State railways, which have been equipped with abundant loop-lines, etc., could deal with a much more considerable traffic than at present ; hence their financial situation is a difficult one. It can only he improved by means of strict economy and by decreasing the number of employees, and important steps have already been taken in this direction. But as soon as normal traffic is resumed, not to speak of the almost certain increase in this traffic, the situation will soon become normal and will continue to be more and more favourable.

E. Transit.

Owing to its geographical situation Esthonia is destined above all to be a country of transit between Russia and the Western nations. This circumstance has influenced the country's policy, and has been taken into consideration by the Government in drawing up the various conventions which have been concluded.

Transit, trade and communications with Russia only began to be resumed gradually in the autumn of 1920. Before that date transit trade was negligible.

The League of Nations sent a delegate to Esthonia to enquire into means of transport, first in the summer of 1920 and again in December 1920.

Two important Conventions relating to transit have been concluded, one with Russia, the other with Latvia.

The Esthonian-Russian Treaty of Peace signed at Tartu contains the following provisions in Article 16, Annex 1:

2. The contracting parties agree, as soon as possible after the ratification of the present Treaty of Peace, to commence negotiations for the conclusion of a commercial treaty based on the following principles:

(a) To apply most-favoured nation treatment in their respective territories to the citizens, firms, commercial, industrial or financial companies, to vessels and their cargoes, and to the products of the soil and those of the rural industry of the other Contracting Party, and also to the export and import of the goods of one of the Contracting Parties within the territory of the other Party.

(b) Goods in transit across the territory of one of the Contracting Parties are not subject to any import dues nor to any transit tax.

(c) The transport rates for goods in transit shall not be higher than those levied upon other kinds of goods consigned to the country.

After the conclusion of this Peace Treaty, dated February 2nd, 1920 a Convention was signed between Esthonia and Russia on September 17th, 1920, regarding direct passenger and goods traffic.

A provisional Convention was also signed on September 18th, 1920, between the railways of Latvia and Esthonia relating to the transit of passengers, passengers' luggage and hand luggage, mail bags, and goods coming from Esthonia into Latvia and *vice versa* through the railway junction of Walk.

II.

INLAND NAVIGATION.

Tartu (Dorpat) is the most important Esthonian port for inland water transport. Situated on the Emajogi, which is navigable for small steam-

ships as far as this town, it is connected with all the ports on the large lake Peipus; the most important of these are Kodawere, Mustvee, Ranna-Pungerja, Wasknarva (Syrenstsi).

Before the war with Russia this port was also connected with Oudowa (Gdoff), Pihkwa (Pskoff), but these relations have not been resumed owing to present internal conditions in Russia. During the summer a vessel plied twice weekly between Tartù and Wasknarva, serving the intermediate Esthonian ports. At Wasknarva there is also a small vessel plying between that town and Joa, which is situated on the river Narova immediately above Narva. This vessel cannot touch at the town itself, on account of the Narova Falls. This waterfall, which is 20 metres high, works several mills, and furnishes a force of 12,000 h.p. At present only a small part of the fall is utilised, but, according to the plans of the Esthonian Government, the fall should be able to supply 60,000 h.p.

It should be possible to travel by waterway from Tartù to Pernau, via Emajogi, Lake Wirtz and the Tanasilmajogi, via Wiljandi (Felinn), Osjujogi and the Parnujogi, for, according to tradition, such connections formerly existed; but this route is not in use at present, and it seems doubtful whether these connections will be restored. The most serious obstacles which prevent the use and development of the internal navigable waterways of Esthonia are, firstly, the long winter period during which they are not navigable, and, secondly, the absence of heavy low-priced goods, as, for example, iron-ore, coal, etc.

III.

MERCANTILE MARINE.

A. Ports.

Owing to her geographical position and the character of her coasts, Esthonia is exceptionally well situated from a maritime point of view. For this reason the Esthonians have been noted from the very earliest times for their love of the sea and their maritime adventures. Esthonian sailors may be found to-day in all parts of the world, and they formed a very considerable part of the former Russian Navy. Since the proclamation of Esthonia's independence and since her flag has appeared for the first time at sea, the Esthonian people have been able not only to renew their maritime activities but also to create a merchant fleet. The latter at present includes the following vessels:

	Number:	Tonnage.
Steamships	52	16,208
Sailing vessels	373	17,087
Motor boats	71	526
Total	496	33,821

During the year 1921 it was hoped to complete 53 small vessels which are now in course of construction. It is obvious that the number of these ships under construction only represents the beginning of a natural evelopment of the country's maritime interests, which depend for theird existence and maintenance on the political independence of the country.

In Annex I [1] a complete statement will be found regarding the Esthonian ports, their present condition, accessibility, etc. ; it will therefore suffice here to give a few words of explanation regarding each of them.

Reval (Tallinn) has always been and still remains Esthonia's most important port. During the Middle Ages it was one of the most important commercial centres of the Baltic Sea, but during the last two centuries, when it was under the domination of the Czars of Russia, it was unable to maintain its former position. Now that the construction of a new line of railway from Reval to Moscow is an accomplished fact, the port of Reval will certainly regain its former place and will once more fulfil the important role which devolves upon it, not only on account of its proximity to Russia, but also because of the facilities which it offers for trade relations with the countries of Western Europe.

With this object the Esthonian Government proposes to establish at Reval a free port possessing all the equipment necessary for the storage of goods and the repair of ships. It may be remembered that two years before the War the Russian Government had decided to build near Reval, at Paljassar, a new base, of large dimensions, and possessing all the necessary installations. It is possible to build at this spot a very large free commercial port with a capacity of more than 500,000 tons, which would be completely independent of the existing port and of the town of Reval.

But though this far-reaching scheme cannot reasonably be contemplated at the present moment, a free port might be built on another site called Port Mine. At this place extensive works have also been undertaken, but, in view of the growing commercial importance of this port, these works should be completed and new establishments should be added.

As regards the present port the enlargement of the west quay was in progress at the time of the outbreak of war ; this has to be completed, and the quays will then have a length of 1,930 feet. The building of this quay, and the other changes which this scheme of reconstruction will involve in the existing port, will result in doubling and even trebling its present capacity. The fishing and coasting trade harbour is also being developed.

In order to adapt the existing port to present needs, it should be provided with all mechanical means for handling goods, such as electric or hydraulic cranes, etc.

Further, in the Bay of Telliskoppel there are two large ship-building yards belonging to the company known as the "Russo-Baltic and Boecker,"

[1] See table between pages 244 and 245.

which are to be connected by rail to the Esthonian railway system and which might form the basis of an independent port at Telliskoppel.

Port Baltic (Baltiski) was bounded 200 years ago by Peter the Great, who intended to build a dyke between the island situated to the west (Pakir Saarid) and the mainland. Owing to the depth of the water, which is more than 20 metres, it was found that the construction of this dyke was impossible, so that the present port is not very extensive. However, the port of Marseilles is an excellent example of the fact that, even when there is deep water close in shore, a large port may be built at a reasonable cost. If, as has been proposed, a free port can be established at this place, it must be built on the same lines as that of Marseilles, and its capacity must be made as large as possible. It must not be forgotten that Port Baltic is entirely ice-free all the year round. If, however, the construction of a great port should have to be postponed, it is essential to deepen the present port and to add several quays.

Parnu (Pernau).—This port, which is also very old, is of considerable local importance. Situated at the mouth of the river Pernau it has served for a very long time as a transport route for the products of the rich district through which this river flows; the market for these products — flax and timber — was Riga. Later the commercial relations of this port increased and after the construction of a narrow-gauge railway and the establishment of a cellulose factory at Waldhof, its traffic with England became very considerable; it imports coal and exports flax, timber, paper-pulp and paper. In order to enable this port to fulfil present needs, the present wooden wharves would have to be replaced by stone quays, and the mouth of the river and the entrance to the port would have to be deepened to 20 feet.

Narva.—The port of Narva (Joesuu), at the mouth of the river Narova, is situated at a distance of about 12 km. from the town of Narva. As it is not protected from the prevailing westerly winds, its importance is entirely local, and quite inconsiderable. The depth over the bar is only 15 feet. In order to improve the port, it would first of all need to be connected by a branch line to the State railway, and it would also be necessary to deepen it and construct quays.

Haapsalu (Hapsal).—This port owes its importance to the fact that it serves the traffic of the great Esthonian islands Saaremaa (Oesel) and Hiiumaa (Daga) with the mainland of Esthonia. It is not deep, and it is an entirely natural port situated in a small sound, and trading with various small ports in the islands and the archipelago. At the outbreak of war Russia, in order to defend her coast, decided to establish at this point an independent naval base, equipped for the speedy supply of war-ships with fresh water and liquid fuel. With this object the port of Rohukula was built and provided with large reservoirs of water and crude oil, together with the requisite pumps. During the retreat of the Russian armies these

establishments were completely destroyed, but the quays still remain and may now, if provided with a few new installations, be utilised for commercial purposes. This port is connected to the station of Hapsal by a branch line 5 km. in length.

Kuresaar (Arensburg) is a port on the island of Saaremaa, having the same depth as Hapsal. Its importance is entirely local but before the war its traffic to Riga was considerable. At a point to the west of this island, near the Vilsand lighthouse, is the port of Kielkond, which is situated in the centre of the Baltic, well protected from winds and completely ice-free. The latter port cannot be fully developed until the scheme to connect the island of Saaremaa with the mainland is carried out.

Mention must also be made of the two small ports situated on the north coast of Esthonia, Loksa and Kunda. The former is both a shipbuilding and repair centre and also a port for the export of the products of a large match factory and of a paper factory; it is also the centre of a considerable trade in wood fuel and building timber from the neighbouring forests. Kunda was built in order to supply the needs of a cement factory, which makes use of it to export its products and to import materials which it needs, particularly coal.

In this brief summary only the most important ports of Esthonia have been mentioned. Apart from these, there exist a number of small ports (which have lately increased appreciably) used for fishing purposes, or by small coasting versels; the reason of this development must be sought in the Esthonian Declaration of Independence and it is certain that these ports will rapidly gain in importance.

As regards navigation, all the sea routes in Esthonian waters are completely cleared of mines, and four mine-sweepers are employed to ensure their security. On all the routes, buoys are moored wherever necessary. All the lighthouses are in perfect order and the lightships in their proper positions. Generally speaking, as regards navigation, it may be said that all the Esthonian sea routes are in excellent condition.

B. Traffic and Freight.

Just as Esthonia, as was pointed out in the report on the situation of Esthonian railways, has chiefly concerned herself with the question of railway transit,—in accordance with the policy which she has adopted —she has acted in the same way as regards maritime communications, and intends to apply to the latter the same principles as she applies to land communications.

We must here refer to Article 16, Annex 1, paragraph 3, in the Treaty of Tartu, signed on February 2nd, 1920, by Esthonia and Russia; this paragraph reads as follows :—

In the free basin to be opened in the port of Tallinn and in other Esthonian ports, sites shall be reserved for Russia for the transhipment and storage of goods originating from, or destined for, Russia, and the dimensions of these

sites shall be in proportion to the size of the port and the volume of Russian traffic ; moreover, the charges levied on these sites shall not exceed the transit dues levied on Esthonian nationals.

and also Annex 2, paragraph 2, of the same article, which specifies as follows :

A special convention shall be concluded between the two contracting parties in respect of fishing on Lake Peipus and Lake Pihkva ; such fishing can only be carried on by methods which are not liable to exhaust the stocks of fish in these lakes ; and also with due regard to commercial navigation on these lakes.

The table in Annex IV [1] gives a summary of the amount of goods which passed in transit into Esthonia from or for Russia in 1920.

Several shipping companies maintain regular services, starting from Reval, as follows :—

Tallinn-Hull	with the ships :	Kajak, Sakala.
Tallinn-Copenhagen	» » »	Baltonia.
Tallinn-Stettin	» » »	Wasa, Thorsten.
Tallinn-Stockholm	» » »	Kalewipoes, Gauthic.
Tallinn-Helsingfors	» » »	Viola, Ebba, Munk.

Several other services are under consideration : for instance, a line from Reval to the United States, and several others to England.

The number of passengers and the total amount of traffic for the year 1920 are given in Annexes II and III [2]. It should not be forgotten, however, that 1920 was still a year of war for Esthonia, and that, in consequence, these figures must not be considered as normal.

Passenger and freight rates, after having remained unchanged during 1920, began to decrease in the autumn, and the fall in prices appears to be continuing. The figures given below will provide an indication to these prices during 1920.

Whilst considering these prices it should not be forgotten that 1,000 Esthonian marks are worth about £1 sterling.

Cost of passage (without food) :—

January	Baltonia	Stockholm	700	Esthonian	Marks.
February		Stettin	1,000	»	»
March	Kajak	Hull	10,000	»	»
March	Baltonia	Copenhagen	1,000	»	»
June	Tasuja	Helsingfors	600	»	»

[1] See page 252.
[2] See page 247 and 248.-249

Annex I. — DESCRIPTION OF THE PORTS OF THE ESTHONIAN REPUBLIC.

Name of Port	Depth of Water	Length of Quays (in feet)	Capacity of Port (in tons)	Capacity of Bonded Warehouses (in square feet)	Railways	Loading Plant (cranes.)	Tugs.	Lighters. (Total tonnage.)	Docks.	Quays. (Docks).	Fresh water Supply	Shipbrokers	Stevedores	Pilots	Lighting of the Port	Steamship Lines
[illegible]	23.30	10,964	35,000	1,333,005 Apart from the warehouses referred to above there are at Reval warehousing firms such as Makkaroff Brockhausen, Steamann Volta, Kohlmann and Bekker.	There is a standard-gauge line running along the goods quay and Dock No 1, and a narrow gauge line which runs along the Belkof quay, the elevator quay, and to the southern end of Quay No 1	7 Floating steam cranes, with a lifting power of 73,25 tons.	9 Tugs 9 125 600 H. P.)	19 Lighters (3 263 tons	4 Floating Docks, 2 of which are connected and capable of lifting a vessel of 3,500 tons.	Quay and work Shops of the building department of the Commercial Navigation Section, besides 8 large building yards and 1 small one in the town	1 Motor-boat, 2 Lighters, 70 small branches on the quay	1. Lawra stidu-amet, The Government Shipping Board. 2. Frunkmann and Co. 3. Gaherbdek C. F. 4. John Pitka and Son. 5. Stude 6. Pilga and Co. 7. Fallina Laewa - Whisus Reval-Shipping Co Lloyd. 8. B. Wishart 9. P. Bernoldt and Co. 10. N. Christanson and Co. 11. Grunberg and Co. 12. John Narminen.	Stevedores and private firms	Government Pilots.	Electricity	2 lines Stockholm 1 Stettin 3 to England There are also a few lines plying east
[illegible]	17	1,558	20,000	270,000	A branch line follows the length of the quay		3 Tugs	2 Lighters (140 tons).		One Government Dock.	2 Artesian Wells.	1. Joh. 2. Dicks and Co.	The loading and unloading of vessels is undertaken by private firms.	Government Pilots.	Electricity.	
Narva		At Narva : 3,605. At the mouth of the river Narva : 1,785	4 200 tons along the quays The river Narva can accommodate 20 vessels	317,086		A hand crane	4 Tugs	14 Lighters (1,100 tons). 3 Lighter (300 tons) 1 » (900 tons). Total : 18 Lighters.				Heidmann, at the mouth of the river Narva.	M. Shipki undertakes the loading and unloading of vessels and employs labour by the day.	Government Pilots.	By "Lux" lamps	One line for traffic on the river Narva
[illegible]	17 21	1,099	8,000 - 10,000 tons.	130,340	There is a standard gauge line running along the shore with a branch line running east There is a narrow gauge line on the western quay.								The loading and unloading of vessels is undertaken by private firms.	There are no permanent pilots; they must be hired if necessary.	By "Lux" lamps	
Hapsal	10	525	1,200 tons.	12,000				1 Lighter and 1 Steamboat.		Dock of the Marhue Guard-Ship.	1 Artesian Well.	Republican Navy.	The work is performed by workmen from the town, as occasion requires.	Government Pilots.	By "Lux" lamps	1. Haapsalu-Kuiwaste-Kuresaar. Haapsalu Kuiwast Arensburg 2. Haapsalu-Leia-Sorro 3. Haapsalu-Helterma-Hapsal-Helterma 4. Haapsalu-Worms-Hapsal-Worms
[illegible]	16	5,005	30,000 tons	80,000	A branch of the standard gauge Hapsal line runs along the middle of Quay № 3.						1 Well.		No regular workers, but labour may be hired if required in the village at Rohukulla.	Private Pilot		
[illegible]	10	2,191		13,867	Narrow-gauge line			1 wooden Steamboat with a 25 H.P. motor and 1 wooden motor boat with a 12 H.P. petrol motor.			Water is brought by rail from the town of Arensburg	Republican Navy.	The workmen work under contract.	Government Pilots.		Kuresaar-Haapsalu-Kuiwaste. Arensburg-Hapsal via Kuiwast
[illegible]	18	1,197	2,500 tons.	23,100	Narrow-gauge line.				Careening Dock capable of accommodating from 4 to 10 vessels (350 tons) at the same time.	Careening-Dock workshops.	River water.	Republican Navy, under the direction of the Brickmaking Department.		Private Pilot.	By "Lux" lamps.	Reval-Zitei-Loksa-Kasperwieck et Vesn
[illegible]	8-9	469	400	25,000 The warehouses are used by the cement factories of Port-Luda. They are capable of holding 75,000 barrels of cement.	A narrow-gauge line connects the cement factories with the port, but the wagons are brought to the quay by horse-traction.	3 steam cranes.	1 Tug.	11 Lighters.		Copper and tinsmiths' workshops.	1 Artesian Well.	Th. Clayhills and Sons.	Messrs. Clayhills' workmen, working under contract.	Private Pilot.	Electricity	
[illegible]	8	2,100	10,000	15,000	The construction of a railway is under consideration.		4 Tugs.	70 Barges.		Copper and tinsmiths' workshops at the junction of the quay.	Artesian Well	1. Lawia stidu amet. The Government Shipping Board 2. Luwimaa. Aurulaewaselts. The Livonian Shipping Co. 3. Kutte jawas osa, uhisus. The Fare and Transfaring Co.	Labour may be hired if necessary.			1. Tartu Suents Dorpat Suents. 2. Tartu-Lisja. Dorpat-Lisja.

Freight Rates.

Wood	March	Hull	£ 12	per standart.
	May	»	£ 12	» »
	August	»	£ 11	» »
	October	»	£ 7	» »
Flax	March	»	£ 16	per ton.
	May	»	£ 16	» »
	August	»	£ 12 5s.	» »
Coal	May	»	£ 3 10s.	» »
	December	»	£ 1 5s.	» » to £1 10s.

C. Fuel.

The question of fuel has been, and still is, one of the most difficult of solution. Before the war, English coal was very abundant, being brought over as ballast by ships going to load grain in Russia for England; the war put an end to this favourable state of things. English coal was then replaced by Russian, but as a result of the war with Russia this also became unobtainable. The war reduced Esthonia to her own resources and obliged her to make use of her supply of firewood. This resulted, almost at once, in a greatly increased exploitation of firewood, but it has not been possible to make the supply meet the demand.

The following figures throw some light on the price of fuel :—

Wood for firing, per fathom (114 cubic feet)	460-1,250	Esthonian Marks.
English coal, per pood (1/61 tons)	60-165	» »
Schist fuel, per pood	3.20-11	» »

The prices of schist fuel have increased, and have been settled for 1921 on the following basis :—

1st quality	16.50	Esthonian Marks per pood.
2nd »	11.50	» » »
3rd »	7	» » »

The Esthonian Government is at present negotiating to obtain Polish coal from the mines of Dombrova. If this hope is realized it will cause a great reduction in price.

IV.

MOTOR AND AIR TRANSPORT.

Motor transport has not up to the present been developed in Esthonia. Until the autumn 1920, all the motor-cars were requisitioned by the military authorities, but nevertheless, during this period, plans for several motor services were considered, *e.g.*, a service from Kuressar on the island of Saaremaa, to the nearest railway station of Tallinn-Hapsal. It is evidently necessary to create motor transport services, owing to the complete inadequacy of the railway system for the rapidly increasing needs of the country. The establishment of such services is, however, difficult, owing to the bad state of the roads and the fact that they are covered with snow in the winter. Nevertheless, it is to be hoped that a great effort will be made in this direction.

At the beginning of the war against the Bolsheviks, Esthonia was compelled to face the difficulties connected with the creation of an Air Force. She succeeded in overcoming these obstacles and she now possesses a certain number of bold and experienced Esthonian pilots and a fair number of modern aeroplanes. It is nevertheless certain that air transport cannot be undertaken by the State, and can only be developed by the creation of commercial air services. Three different proposals have been placed before the Ministry of Railways and Communications with the object of obtaining concessions, but the examination of these proposals has not yet terminated, so that they have not, as yet, been sanctioned.

Annex II.

Passenger Traffic in the Esthonian Ports in 1920.

Ports	Arrival of Passengers	Departure of Passengers
Kuresaar	41	56
Parnu	42	26
Hapsalu	10	18
Baltiski	202	144
Narva Joesuu	262	71
Tallinn-Reval	6,730	7,484
Total	7,287	7,799

In addition, 35,713 prisoners passed through Baltic ports, and 121,661 through Narva-Joesuu.

ANNEX

Goods imported into Esthonia:

Goods	England	Germany	Sweden	Denmark	Finland	Latvia
Flour	194	2,231	34,771	36,827	1	
Sugar	36,363	6	15,360	24,228	9,060	
Herrings	1,916	78,166	14,219	41,422	51,905	
Salted sprats			23,380		55,857	
Salt	4	988,935	10,833	29,230		
Leather	3,527	9,808	3,408	4,262	2,189	2
Wool	2,823	27	1,066	1,787		
Woollen Cloths and knitting wool	613	23	28	71	390	
Cotton	52,837		14,993		7,635	
Cotton yarn and cotton cloths	2,133	713	1,286	1,192	1,967	
Iron	13,581	109,532	44,293	4,451	6,216	3,081
Agricultural machinery	11,303	15,498	60,120	362	226	5,320
Coal	804,043	5,586				
Petroleum	212,916		51,880	5,467	36	
Manure		88,145	61,390			
Totals	1,142,759	1,298,670	336,806	149,939	135,572	8,493

III.

Customs Statistics for 1920 (in poods).

Norway	Holland	Austria	Poland	America	France	Lithuania	Totals
				12,368	17		86,409
	26,253			657	14		113,117
292,519					7	4,442	484,596
							79,237
			74,326	14			1,103,342
				55			23,251
					61		5,764
							1,125
				4,067			79,532
212							7,502
3		714		11		4,644	186,526
				38,175			131,034
							809,629
				49,806			320,045
				331,940			481,285
292,734	26,253	714	74,326	437,093	99	9,086	3,912,394

ANNEX

Goods exported from Esthonia:

Goods	England	Germany	Sweden	Denmark	Finland
Potatoes.....		223,981	201,631	39,917	177,095
Alcohol..... litres	7,220	3,000	1,456,620	72,600	4,040
» ..... poods	361	150	72,832	3,630	202
Wood.....	3,198,852	1,368	29,056	94,568	71,890
Pulp.....	156,348	6,764	121,265	156,594	12,206
Paper.....	25,381	31,552	52,776	25,527	25
Flax.....	150,407		2,442	8,600	
Bricks					228,953
Cement.....	11	11,990	145,519	440	88,028
Totals....	3,531,360	275,905	506,420	329,276	578,399

III (Continued).

Customs Statistics for 1920 (in poods).

Latvia	Holland	France	Russia	Morocco	Lithuania	Totals
13,737			868,153		4,511	1,534,007
146,780			40			1,690,300 litres
7,339			2			84,515 poods (1)
	667,647	9,733	4,750	34,380		4,113,144
		20,646				353,823
109,780	22,335	175,795	452,717			895,988
12,501		34,085				208,035
						228,953
11,000		55				257,043
159,337	689,982	240,314	1,325,622	34,380	4,511	7,675,506

(1) 1 standart = 165 poods.

Annex IV.

Goods in transit between Esthonia and Russia via Narva in 1920.

	Tons.
A. Imports into Russia.	
Salt	839,5
Food products	2,413,1
Leather and leather goods	1,400,0
Wood	4,6
Wooden articles	3,1
Paper and printed matter	485,2
Textiles and footgear	2,052,1
Iron and steel (raw and partly manufactured)	385,3
Steel articles and tools	1,489,8
Other iron articles	1,153,2
Lead and brass articles	1,814,7
Agricultural implements and machinery	7,146,9
Miscellaneous machinery and vehicles	710,4
Surveying instruments, apparatus and tools	110,8
Grindstones and whetstones	366,4
Coal	1,442,6
Oil and mineral fats	104,6
Other oils and fats	8,6
Rubber articles	56,2
Chemical products	1,977,6
Sundry goods	744,7
B. Exports from Russia.	
Veneer	2,382,7
Linen	1,132,9
Sundry goods	23,0

Annex V.

List of Ships having entered the Port of Tallinn-Reval classed according to their flag and type.

Nationality.	Steamers.		Motor-propelled vessels.		Sailing Ships.		Total.	
	Number.	Net tonnage.	Number.	Tonnage.	Number	Tonnage.	Number.	Tonnage.
Esthonian..	211	45,115,39	626	3,380,14	1,412	10,492,99	2,249	88,976,52
British	14	13,655,13	—	—	—	—	14	13,655,13
American...	8	20,303,—	—	—	—	—	8	20,303,—
German	100	52,749,49	2	324,55	2	4,244,28	104	57,318,32
French	2	2,380,—	—	—	—	—	2	2,380,—
Swedish	62	18,010,02	47	5,876,97	4	223,49	113	24,110,48
Finnish.....	177	43,505,58	155	5,209,85	36	1,946,17	378	50,661,60
Danish	30	16,638,80	14	1,565,21	10	1,156,72	54	19,360,73
Dutch.....	22	5,364,72	—	—	1	76,85	23	5,441,55
Norwegian..	12	7,420,41	5	1,115,15	1	52,01	18	8,587,57
Russian	—	—	—	—	2	189,56	2	189,56
Latvian	19	2,817,35	—	—	1	1,39	20	2,818,70
Total...	657	227,959,89	849	17,471,87	1,459	48,371,44	2,975	233,003,50

Annex VI.

List of Ships having entered the Port of Tallinn-Reval classed according to their flags.

Nationality.	1909		1919		1920	
	Number.	Net Tonnage.	Number.	Tonnage.	Number.	Tonnage.
British	—	—	29	46,068,—	14	13,655,13
American	—	—	12	19,636,—	8	20,303,—
German.....	—	—	37	13,021,89	104	57,318,32
French	—	—	3	6,380,—	2	2,380,—
Swedish.....	—	—	38	4,304,62	113	24,110,48
Danish	—	—	14	2,434,49	54	19,360,73
Dutch.....	—	—	28	3,962,05	23	5,441,55
Norwegian....	—	—	11	3,026,97	18	8,587,57
Russian.....	—	—	26	1,092,05	2	189,56
Finnish.....	—	—	302	30,830,18	378	50,661,60
Latvian.....	—	—	32	1,272,92	20	2,818,74
Esthonian....	—	—	855	55,774,66	2,249	88,976,52
Total...	14,429	3,891,854	1,387	210,519,23	2,975	293,803,27
Net average tonnage of ships.....	—	270,—	—	152,—	—	100,—

FINLAND.

RAILWAYS.

Length of State Railways.

	Actual length 1920	Length worked 1920
Helsingfors-Tavastchus-Rajajoki (frontier)	527 km.	527 km.
Rajajoki-Petrograd	40 »	—
Hanga-Hyvinkää	153 »	153 »
Abo-Tammerfors-Tavastehus	212 »	212 »
Vasa-Tammerfors	313 »	313 »
Torneâ (frontier)-Seinäjoki	495 »	495 »
Kajana-Kotka	556 »	556 »
Nurmes-Imatra-Viborg	642 »	642 »
Björneborg-Tammerfors	164 »	164 »
Pieksämaki-Suolahti-Haapamäki	198 »	198 »
Abo-Karis-Fredriksberg	195 »	195 »
Pieksämaki-Elisenvaara	204 »	204 »
Rovaniemi-Laurila	109 »	109 »
Kristinestad-Kaskö-Seinäjoki	142 »	142 »
Koivisto-Terijoki	74 »	74 »
Total:	4,024 km.	3,984 km.

The capital of the State Railways on December 31st, 1919, was 451,517,406 marks, or, according to the Central Statistical Bureau of Finland, 2,440,000,000 marks.

Financial Results obtained by the State Railways.

	1919		1920	
WORKING REVENUE.	Marks.	Per kilometre in working.	Marks.	Per kilometre in working.
Passengers:				
1st class	843.800	212	1.248.000	313
2nd »	21.785.100	5.468	27.375.700	6.871
3rd »	76.990.800	19.325	90.352.500	22.679
Reduced prices	16.285.100	4.088	6.525.000	1.637
Other receipts obtained from passenger traffic	9.261.400	2.324	11.263.200	2.827
Total	125.166.200	31.417	136.764.400	34.328
Goods:				
Slow train	158.031.100	39.667	205.271.000	51.524
Express train	10.028.000	2.517	10.021.900	2.516
Other receipts from goods traffic	7.785.600	1.954	11.620.600	2.917
Total	175.844.700	44.138	226.913.500	56.957
Sundry receipts	4.108.100	1.031	6.941.200	1.742
Total receipts	305.119.000	76.586	370.619.100	93.027
WORKING EXPENDITURE				
General Administration	6.878.700	1.726	7.616.800	1.912
Traffic and Circulation	31.320.600	7.862	35.013.800	8.789
Supervision and Maintenance	22.134.200	5.556	28.785.700	7.225
Traction and Material	73.270.800	18.391	94.046.500	23.606
Bonuses	75.500.000	18.951	111.759.500	28.052
Sundry Expenses	3.059.800	768	3.635.100	912
Total Expenditure	212.164.100	53.254	280.857.400	70.496
Excess of Revenue over Expenditure	92.954.900	23.332	89.761.700	22.531

Passenger and Goods Traffic on the State Railway Lines.

Passengers.	1919	1920
1st Class	8,600	11,700
2nd ,,	769,400	1,114,500
3rd ,,	11,429,900	15,394,200
Reduced Prices	1,134,800	350,300
Total	13,342,700	16,870,700
Goods.	**Tons.**	**Tons.**
Slow trains	3,985,471	5,146,928
Express trains	47,191	53,800
Total	4,032,662	5,200,728

Rolling Stock of the State Railways and Distances covered.

	1919		1920	
	Number.	Kilometres covered.	Number.	Kilometres covered.
Locomotives	523	20.698.500	549	23.871.800
Passenger Coaches	921	61.486.700	956	65.902.800
Axles	2.255	167.488.600	2.372	181.706.200
Goods Trucks	12.601	175.881.100	13.233	226.053.700
Axles	26.352	365.142.400	27.622	469.959.800

Distance covered by Trains.

	1919	1920
Passenger trains	8.443.000 km.	8.982.500 km.
Goods trains	5.484.400 ,,	7.052.200 ,,

Staff of State Railways in 1919.

	Staff		
	Employees	Day Labourers	Total
General administration	893	5	898
Traffic and circulation	8,341	1,227	9,568
Supervision and maintenance	1,296	2,610	3,906
Traction and material	2,876	2,589	5,465
Total...	13,406	6,431	19,837

FRANCE.

I.

RAILWAYS.

New Lines.

According to the general observations which appear in the estimates for 1921 and 1922, the programme of work to be undertaken affects the following lines :

(*a*) Two routes traversing the Vosges—namely, from St. Maurice to Wesserling and from St. Dié to Saales.

The former of these two lines will connect the two branches of the line from Epinal to Mulhouse ; the latter will establish direct communication between Epinal and Strasburg. This work was declared to be of public utility on March 28th, 1920, and a section of the line from St. Dié to Saales will probably be open by the end of 1922.

(*b*) Lines from Lérouville to Thiaucourt and from Pont St. Vincent to Blainville ; the former, 34 kilometres in length, will establish direct communication between Metz and Bar-le-Duc ; the latter, 4 kilometres in length, will link Toul with Blainville, without passing through Frouard and Nancy.

(*c*) A line from Limoges to St. Germain-des-Fossés, which is intended to improve the Bordeaux-Lyon line.

(*d*) A line from St. Germain-des-Fossés to Paray-le-Monial, which will facilitate traffic between Bordeaux and Mulhouse.

(*e*) A line from Rouen to Havre and a line crossing the Seine and connecting Havre with the western districts.

(*f*) A line from Nantes to Paimbœuf through Le Pellerin.

Among larger undertakings in contemplation the programme mentions the following :

(*a*) The Channel Tunnel.

(*b*) A line joining the Paris-Nord and the Paris-P.L.M. stations, which will enable passengers to travel to, or return from, England without crossing Paris.

(*c*) Quadrupling the tracks of the Paris-Orleans line between the St. Michel bridge and the Archevêché bridge.

(*d*) Construction of a line passing round the town of Nantes, and removal of the station to a different site with a view to improving the line from Nantes to Savenay.

(*e*) The electrification of the main railway systems; this will affect a length of 8,839 kilometres, according to the plan, the power being derived, for the P.O. Company, from the Haute-Dordogne and for the P.L.M. Company, from the Rhône.

The new lines (including lines which are to be doubled or quadrupled at the request of the military authorities) which are under construction or projected may be divided into four classes:—

CLASS I.—Lines under construction which will certainly be completed, though the rate at which the work will be pushed on may vary according to the importance attached to these lines and according to their progress towards completion.

The following lines are included in this category:

State railways:—

The line from Paris to Chartres, via Gallardon (85 km. 6) and from Châteaulin to Camaret (52 km. 9).

Nord railway system:—

The line Aulnay-sous-Bois to Rivecourt (67 km.).

The P.O. railway system:—

Villeneuve-sur-Lot to Falgueyrat (38 km.).
Cahors to Moissac (61 km.).
Montluçon to Gouttières (42 km. 2).

The Est railway system:—

Briey to Hussigny and to Villerupt (4 km.).
St. Dié to Saales (24 km.).

The P.L.M. system:—

Nice to Coni (63 km.).
La Ferté Hauterive to Gannat (35 km.).
Riom to Vichy (41 km.).
Monéteau to St. Florentin (25 km.).
Le Puy to Niegles-Prades (93 km.).
Chorges to Barcelonnette (42 km.).

The Midi system:—

Connecting line from Midi-Médoc to Bordeaux (14 km.).
Transpyrénéan (71 km.).

Colombiers to Cruzy (20 km.).
Estréchoux to Plaisance (10 km. 5).
St. Girons to Oust (16 km.).
Condom to Castéra-Verduzan (23 km.).
Carmeaux to Vindrac (25 km.).
Bazas à Auch (99 km. 5).
Beaumont to Gimons (31 km. 5).
Albi to St. Affrique (76 km. 5.)
Auch to Lannemezan (69 km. 5).
Agetmau to Pau (54 km.).

The Alsace-Lorraine system :—

Rothau to Saales (17 km.).
Waldighoffen to St. Louis (22 km. 7).
Boulange to Ottanges and Rumelange (10 km. 4).
Reding to Drulingen (19 km. 5).
Richemont to Grandange (1 km.)
Neuf-Brissach to Bantzenheim Haberhaeuser (48 km.).
Moyeuvre-Grande to Homécourt (5 km. 4).
Adlergrund to Hussigny (2 km. 3).
Amanviller to Gravelotte (9 km. 3).

Subsidiary systems :—

La Mure to Gap via Corps (84 km. 8).
Cheylard to Aubenas (61 km. 5).
Ghisonacciato Bonifacio (105 km. 7).

Class 2.—Lines which have been authorised or declared to be of public utility, but which are not yet under construction. These lines may again be subdivided according to their degree of urgency, those being considered of secondary urgency which are not of sufficient importance — in view of the present financial situation — to warrant their being constructed immediately.

State railways :—

Beuzeville to Lillebonne (5 km.).

The P.O. system :—

Libourne to Langon (46 km.).
Treignac to Bugeat (18 km.).
St. Leonard to Ouzances (98 km.).
Confolens to Bellac (49 km. 5).
Bonnat to Evaux (74 km. 7).
Argentat to Salers (67 km.).

These six lines are of primary urgency.

Limours to Dourdans (20 km.). (Secondary urgency.)

The P.L.M. system :—

Chamborigaud to Bessèges (16 km.).
Maringues to Randan (11 km. 8).
Oullins to St. Etienne (53 km.).
Briançon to Oulx (20 km.).
These four lines are of secondary urgency.

The Midi system :—

St. Paul-St. Antoine to Lavelanet and Belesta (5 km. 5). (Primary urgency.)
Castelnau to Magnoac and Tarbes (51 km.).
Arreau to St. Larry (11 km.).
Both of secondary urgency.

The Alsace-Lorraine system :—

Cernay to Wesserling (18 km.).
St. Louis-les Bitch to Volmunster (19 km. 9).
Ingwiller to la Petite Pierre (14 km. 4).
All three of secondary urgency.

Military lines :—

Nançois to Léronville (to be quadrupled, a work of primary urgency.)

Special lines for through traffic :—

The Channel Tunnel (25 km.).

Class 3.—Lines which have been authorised but not yet declared to be of public utility ; these may also be regarded as being of secondary urgency.

State railways :—

Pont-Audemer to Port Jérome, passing under the Seine and continued as far as Havre (71 km.).
Carentan to Périers (19 km.).
Both of secondary urgency.
La Gouesnière to Cancale (12 km.). (Primary urgency.)

P.O. system :—

Magnac-Laval to St. Sébastien (38 km.).
Gouttières to Eygurandes (62 km.).
Aurillac to Espalion (66 km.).
Ussel to Bort (29 km.).
All of secondary urgency.

Est system :—

Toul to Nancy via Pont-St. Vincent (16 km.).
Esbly to Coulommiers (9 km.).
Both of secondary urgency.

P.L.M. system :—

Chatelguyon to Combronde (8 km.). (Secondary urgency.)

Midi system :—

Bourg-Madame to Latour (7 km.).
Villefranche to Vernet (9 km.).
Both of primary urgency.
Belesta to Quillan (28 km.).
Espalion to St. Flour (93 km.).
Montlouis to Quillan (87 km.).
Oust to the frontier (23 km.).
All of secondary urgency.

Subsidiary systems :—

Draguignan to Castellane (58 km.).
Castellane to St. André (16 km. 8).
Meyrueis to Millau (41 km.).
All of secondary urgency.

CLASS 4.—Lines which it is proposed to construct in the near future. Only those projects need be mentioned which are already recognised as important and which have been recommended by the Administration.

State systems :—

Havre to Rouen and Pont de l'Arche (right bank of Seine) (107 km.).
Lillebonne to Pont-Audemer by ferry-boat (26 km.).
Nantes to Paimbœuf (17 km.).

P.O. system :—

Switzerland to the Atlantic.
Limoges to St. Germain-des-Fossés (180 km.).

The Est system :—

Lérouville to Thiaucourt (33 km.).
Pont-St. Vincent to Blainville (26 km.).

P.L.M. system :—

Amplepuis to Tarare (13 km. 6).
St. Germain-des-Fossés to Paray-le-Monial (66 km.).
The linking of the Rove to the Mirabeau Basin (10 km. 1).

The Alsace-Lorraine system :—

Hausbergen and Graffenstaden to the new marshalling station of the Rhine port (10 km.).

Créhange to Longueville-les-St. Avold (20 km. 7).

Dieulouard to Remilly (36 km. 1).

Subsidiary systems :—

Bobigny to Sucy-Bonneuil (23 km. 7).

Special lines for through traffic :—

Line connecting the Nord and P.L.M. stations in Paris (8 km.).

The summary contained in the following Recapitulation Table shows the expenditure for each system, reckoned in millions of francs at pre-war prices.

All estimates contained in these tables are based on pre-war prices, but they do not allow for the various subsidies (which must therefore be deducted from the totals), nor for the contributions from companies which, in respect of the first three Classes, amount to 25,000 francs (or 12,500 francs per kilometre according as the lines in question are broad or narrow gauge), and in respect of the 4th Class, to 20 % of the works undertaken under the new regime.

In order to estimate the charges borne by the State at the present time, an increase in pre-war prices would have to be reckoned in respect of the whole programme, amounting to 2,5 for the permanent way and to 4 for the road bed. By estimating in this way we should obtain the following totals :

(1) Considering only works of primary urgency under Classes 2 and 3.

Class 1.	Lines under construction : 594,9 × 3,5	2,082 m.
» 2.	Lines authorised and declared public utilities on which work has not yet begun (primary urgency) 124,25 × 3,5	435 m.
» 3.	Lines authorised but not yet declared to be of public utility (primary urgency) : 8,5 × 3,5	30 m.
» 4.	Lines projected : 937,8 × 3,5	2,582 m.
	Total	5,129 m.

Names of Lines.	1. Lines under construction. Expenditure estimated in millions of francs at pre-war prices.			2. Lines declared of public utility on which work has not yet begun. Expenditure estimated in millions of francs at pre-war prices.		
	Totals.	Expenditure effected Jan. 1st, 1922.	Expenditure to be effected on Jan. 1st, 1922.	Totals.	Primary urgency.	Secondary urgency.
State system	213,9	83,4	130,5			
Nord system	51,0	10,0	41,0			
L'Est system	5,1	0,2	4,9			
Paris to Orleans system	33,5	10,7	22,8	67,3	57,5	9,8
Paris to Lyons and to the Mediterranean	408,5	140,6	267,9	54,7	»	54,7
Midi system	180,45	109,85	70,6	12,3	5,5	6,8
Ceintures system						
Alsace-Lorraine system						
Lines for through traffic				200,0 (1)		200,0
Military lines. Doubling and quadrupling of existing military lines or of lines which are being restored. Connection between lines. Military lines on which work is being recommenced				12,5	12,5	
Lines crossing the Vosges	20,0	4,4	15,6	48,75	48,75	
Subsidiary system	50,8	9,2	41,6			
Totals at pre-war prices	963,25	368,35	594,9	395,55	124,25	271,8

TABLE.

3. Lines authorised but not yet declared public utilities.			4. Lines to be built in the near future.	Remarks.
Expenditure reckoned in millions of francs at pre-war prices.			Expenditure reckoned in millions of francs at pre-war prices.	
Totals.	Degree of urgency.			
	Primary urgency.	Secondary urgency.		
3,1	3,1		181,2	*Note :* In these tables, neither the contributions which have still to be paid by units, nor the share of the companies in the expenditure on permanent way and on road bed, if any, under the new system, have been deducted from the totals.
			»	
4,0		4,0	»	
72,2		72,2	146,0	
3,6		3,6	93,5	
98,6	5,4	93,2	—	
			35,0	The plans have not yet been adopted. The expenditure will be comparatively low.
			—	
			49,0 (2)	
			178,0	
			55,1	
18,6		18,6	»	
200,1	8,5	191,6	737,8	

(1) Channel Tunnel.

(2) Linking up of the Nord and the P. L. M. systems in Paris.

(2) Including works of secondary urgency under Classes 2 and 3.

Class 1.	Lines in operation : 594,9 × 3,5	2,082 m.
» 2.	Lines authorised and declared of public utility, but on which work has not yet begun (primary and secondary urgency) : 395,55 × 3,5	1,384 »
» 3.	Lines authorised, but not declared of public utility (primary and secondary urgency) : 200,1 × 3,5 . .	700 »
» 4.	Lines projected : 737,8 × 3,5 ½	2,582 »
	Total	6,748 m.

Allowing an average period of fifteen years for the carrying out of these plans, the annual expenditure under No. (1) would amount to approximately 340 millions (this figure is somewhat higher than the estimated expenditure for 1922, which amounts to about 300 millions), and in respect of programme (2) to about 450 millions.

Rolling Stock Returns for the Whole of the Main Railway Systems excluding Alsace-Lorraine.

(Including Armistice material and American rolling stock.)

Item.	On January 1st, 1914.			On November 1st, 1921.		
	Total Stock on the Railways (1)	Material under repair (2)	Material available for use (difference between Cols. 1 & 2) (3)	Total Stock on the Railways. (4)	Material under repair (5)	Material available for use (difference between Cols. 4 & 5) (6)
Locomotives	13,754	1,603	12,151	18,314	3,616	14,698
Wagons (Express) (coaches and vans) ...	48,082	4,970	43,112	46,907	12,424	34,483
Wagons (Slow traffic) ...	364,454	14,715	349,739	473,365	64,536	408,829

Number of kilometres covered by passenger and goods trains.
Number of passengers for any distance and per kilometre.
Number of kilometric tons carried by slow trains on each of the main railway systems. [1]

Comparative Statistical Tables: Years 1913 and 1920.

		System	Year 1913	Year 1920	Difference between 1913 and 1920 +	Difference between 1913 and 1920 —
Number of kilometres covered by	Passenger Trains	Nord	35,356,228	17,775,621		17,580,607
		Est	38,846,640	20,178,389		18,668,260
		P. L. M.	55,922,270	32,539,794		23,382,476
		Orleans	43,248,688	23,367,368		19,881,320
		Midi	19,160,602	9,771,415		9,389,187
		State	51,592,257	24,773,416		26,818,841
		Outer Circle	663,223	480,006		173,217
		Inner Circle	1,252,354	673,132		579,222
		Totals...	246,032,262	129,559,132		116,473,130
	Goods Trains	Nord	28,835,638	20,644,233		8,191,405
		Est	24,895,820	17,015,709		7,880,111
		P. L. M.	39,056,156	36,412,367		2,643,789
		Orleans	19,925,748	22,512,975	2,587,227	
		Midi	10,885,704	9,757,316		1,128,388
		State	29,286,626	26,468,805		2,817,821
		Outer Circle	922,862	993,644	70,782	
		Inner Circle	363,064	281,290		81,774
		Totals...	154,171,618	134,086,339	2,658,009	22,743,288
					— 20,085,279	

Number of Passengers carried	Adny distance	Nord	115,002,248	108,239,475		6,762,773
		Est	92,299,140	91,622,197		676,943
		P. L. M.	93,961,606	88,002,582		5,959,024
		Orleans	59,078,232	63,675,245	4,597,013	
		Midi	28,597,901	27,720,589		877,312
		State	136,624,211	136,795,979	171,768	
		Outer Circle	1,229,749	839,941		389,808
		Inner Circle	14,071,735	10,237,533		3,834,202
		Totals	540,864,822	527,133,541	4,768,781	18,500,062
					— 13,731,281	
	per kilometre:	Nord	3,135,386,196	3,847,362,678	711,976,482	
		Est	2,719,783,412	3,148,293,448	428,510,036	
		P. L. M.	4,899,244,545	5,911,915,159	1,012,670,614	
		Orleans	3,044,176,240	3,557,613,476	513,437,236	
		Midi	1,468,013,057	1,506,012,740	37,999,683	
		State	3,943,454,729	4,251,479,343	308,024,614	
		Outer Circle	13,875,357	8,393,549		5,881,808
		Inner Circle	89,035,467	67,754,286		21,281,182
		Totals	19,312,969,004	22,298,824,679	3,012,618,665	27,162,990
					+ 2,985,855,675	
Number of kilometric tons by slow trains:		Nord	5,155,790,656	4,474,508,916		681,281,740
		Est	5,098,247,248	4,215,747,156		882,500,092
		P. L. M.	33,069,709,341	29,889,392,801		3,180,316,540
		Orleans	3,385,673,605	4,426,369,626	1,040,696,021	
		Midi	1,815,255,893	1,769,433,417		45,822,476
		State	3,178,882,052	3,586,182,502	407,300,450	
		Outer Circle	191,959,037	308,946,235	116,987,198	
		Inner Circle	30,139,687	30,105,304		34,383
		Totals	51,925,657,519	48,700,685,957	1,564,983,669	4,789,955,231
					— 3,224,971,562	

[1] In 1921 the number of passenger-train-kilometres increased considerably in comparison with 1920. The statistics are not yet available.

Remarks regarding the Increase in Passenger Fares and Freight Rates.

Early in 1917 the necessity for revising transport rates became apparent ; the continued increase in the price of all commodities had adversely affected the balance between the receipts, the expenses of operation and the financial charges of the Companies. In order to meet the deficit brought about by these conditions, all railway rates were raised. A further increase of these rates was resorted to in order to meet the increased charges due to the economic disorganisation consequent upon the war, but a different rate of increase was adopted for passenger fares and for freights.

1. *Passenger Fares.*

In accordance with the Law passed on April 15th, 1918, passenger fares were increased by 25 %. The Law of February 14th, 1920, sanctioned a further increase, which was fixed at : —

45 % for third-class fares;
50 % for second-class fares;
55 % for first-class fares.

This increase was added to the above-mentioned increase of 25 % and did not take the place of the latter.

Further, the Law of June 29th, 1918 (Finance Act), placed a tax of 25 % [1] on the price of seats for passengers, and of 50 % on the supplementary tickets issued for special accommodation *(places de luxe)*.

Passenger fares, including tax, therefore exceed those of 1914 by :

80 %	in the case of	third-class	fares ;
84 %	»	»	second-class fares;
88,65 %	»	»	first-class fares.

There have been additional increases, varying in amount on the different railway systems, in the price of special accommodation *(places de luxe)*.

2. *Goods Freights.*

The increases in freights are of two kinds: first, those which result from legal provisions and which are uniform, being unaffected by the tariff; secondly, those which result from the standardization of tariffs on the French railways, and which vary according to these tariffs and the traffic concerned.

[1] Superseding the 12 % increase.

The former include the increase of 25 % provided by the Law of April 15th, 1918, and also the increase of 115 % laid down by the Law of February 14th, 1920 ; the latter increase is added to the former, and does not take its place.

The latter increases, which are variable, do not in any case exceed 50%.

A tax of 10 or 5 %, according to the amount of these tariffs, is placed upon freights, including the above-mentioned increase of 25 % (Finance Act of June 29th, 1918, and Law of February 14th, 1920).

Altogether, the increase on goods freights is therefore :

278,75 % on goods included in the first four categories of the general tariff ;

269,40 % on goods included in the fifth and sixth categories of the general tariff, and on food-stuffs.

Fuel consumed by French Railways in 1913 and 1920 and Average net cost per Ton of this Fuel.

Railways.	1913		1920	
	Tonnage consumed.	Average net cost.	Tonnage consumed.	Average net cost.
		Francs.		Francs.
Nord	1,596,647 tons.	16.80	1,566,020 tons.	192.56
Est	1,283,857 ,,	20.07	1,201,517 ,,	188.99
P.-L.-M.	1,871,621 ,,	25.00	2,339,000 ,,	252.00
P.O.	1,354,193 ,,	22.09	1 633,150 ,,	257.78
State	1,424,100 ,,	26.07	1,638,594 ,,	296.62
Midi	551,738 ,,	20.53	523,738 ,,	242.35
General total of tonnage	8,082,156 tons.		8,902,019 tons.	
		Francs.		Francs.
Average net cost per ton	.....	22.19	.....	238.38

The fuel consumed in 1920 was supplied by the National Coal Office (Bureau national des charbons). It was obtained from Germany (Ruhr and Saar), France, England and America.

3. *Financial Situation of Railways in* 1913 *and* 1920.

During the war ordinary industries increased both their output and their prices, thus more than covering their additional expenditure, and contributing to the general rise in prices ; the railways, on the other hand, whilst their commercial traffic decreased, were unable to increase their tariffs, and were thus obliged to submit to a constant increase in running expenses and a simultaneous decrease of traffic. The tariffs for military transport, which were at first extremely low, were raised retroactively, but this increase only compensated for a part of the deficits occasioned by the delays in raising commercial tariffs, which could not be increased with retroactive effect, and were themselves insufficient to cover the still increasing expenses.

As compared with the exclusively commercial receipts of 1913, which amounted to 2,021 millions, the commercial and military receipts written off decreased by 17 % in 1914, and by 16 % in 1915, and increased by 3 % in 1916, 8 % in 1917, 23 % in 1918, 58 % in 1919 and 165 % in 1920; whilst running expenses, which remained almost stationary in 1914 and 1915, increased as compared with those of 1913 (1,277 millions), by 22 % in 1916, 44 % in 1917, 97 % in 1918, 218 % in 1919 and 446 % in 1920.

The coefficient of running expenses, which was 63 % in 1913, increased to 71 % in 1914 and 1915, to 75 % in 1916, to 84 % in 1917, to 101 % in 1918, to 127 % in 1919 and to 132 % in 1920.

The charges on capital, including dividends, were 806 millions in 1913 and 1,444 millions in 1920.

The annual increase of charges on capital during the War was higher on an average than that during the years preceding the War, although during the War, as an exception to the general regulations resulting from agreements, the expenses for work on new lines were repaid in capital by the Treasury, and complementary work was diminished.

If, in spite of this, the charges increased considerably, the reason may be found in the increase of the rates of interest and liquidation of new loans, and in the importance of these loans in view of the inclusion of the deficits of running expense of the two railways, the Nord and the P.L.M., in the budget of initial expenditure, in virtue of the Law of December 26, 1914.

The decrease in receipts and the increase in expenses and charges resulted in deficits of 389 millions in 1914, 358 millions in 1915, 345 millions in 1916, 555 millions in 1917, 975 millions in 1918, 1,850 millions in 1919, and 2,880 millions in 1920, — taking into account the payment of the last 1/12 of the receipts connected with military transport, but not including the amount of the increases in price for this transport.

Up to 1918, the ordinary receipts on all the large systems exceeded the running expenses, not including the charges on capital ; from 1918 onwards the receipts did not even cover the actual running expenses, which exceeded them by about 20 millions in 1918, by 875 millions in 1919 and 1,736 millions in 1920.

On December 31st, 1920, the debts of the guarantee as to interest of the Midi and Orleans Companies had increased in capital and interest by 377 millions and 776 millions respectively. The Compagnie, de l'Est, which paid off all its debts in virtue of the Convention of September 6th, 1911, had on the same date contracted a new debt of 734 millions. In 1914, the year which coincided with the expiration of its right to the guarantee as to interest, the P. L. M. Company, which had similarly liquidated its guarantee debts, appeated to this guarantee, to the extent allowed by its agreement, for a capital of 30,400,000 francs. The Compagnie du Nord, which had never had recourse to die State for financial assistance and whose right to the guarantee as to interest ended, as in the case of the P. L. M., on December 31st, 1914, contracted for 1914, within the limit fixed by its agreement, a debt of about 12 millions. All these guaranteed advances were productive of interest, in virtue of the contracts, of 1883, which could not foresee debts of this magnitude arising from such a source,

On the other hand, the two companies of the Nord and P. L. M. authorised for the years 1914-1920 inclusive to compensate for the deficit (1914) and termination (previous years) of the guarantee as to interest by including their deficits on their budget of initial expenditure, had to borrow for this purpose, for the running expenses of 1914-1920, 1,102 and 1,229 millions respectively in round figures, which formed the debts of these companies towards themselves and for which the annual charges laid an additional burden on their budgets.

Such are the results of the accounts, as far as they can be at present established, for each of the years 1914 to 1920. These accounts are, however, only provisional ; the expenses of military transport, for which the tariffs were increased with retroactive effect, both for the French and Allied armies, are not yet settled. The payment of the sums thus owed for these transports will considerably augment the credits for each year ; it is therefore not possible under these circumstances to supply statistical information of a definitive nature.

Article 19 of the Convention signed on June 28th, 1921, between the State and the railways and approved by the Law of October 29th, 1921, on the new system of railways, released the railways from their debts *(dettes de garantie)* contracted after December 31st, 1913, and from the deficits occurring since that date in the accounts of initial expenditure of non-guaranteed railways.

The complete text of the Article is as follows :—

"The guaranteed debts contracted in fiscal periods prior to 1914 shall be fixed as from December 31, 1913 : they shall cease to bear interest from that date, except in the case provided for in the penultimate paragraph of Article 21 following : their payment cannot be required except on the expiry of a concession or in case of re-purchase.

" The State releases the companies from the debts contracted by them on the basis of guarantee as to interest in 1914 and following years up to the coming into force of the new regime.

" The State shall repay to the Nord and P. L. M. Companies, by annual

payments up to the expiry of the concession and in conformity with Article 15 *b*, the sums included or to be included on the establishment budget of these two railways in application of Article 20 of the Law of December 26, 1914, and not covered by indemnities or repayments."

II.

INLAND NAVIGATION.

I. *Material.*

(a) Navigable Waterways.—In 1913 the total length of the French waterways, classed as navigable or suitable for transportation purposes, was 16,738 kilometres, of which only 11,316 kilometres were actually used for navigation.

These 11,316 kilometres consisted of :—

Rivers, streams, lakes and ponds	6,436 km.
Canals	4,830 km.

The French system of inland waterways is almost entirely administered by the State, and only a very small fraction (255 km.) has been leased to private companies.

The Law of August 5th, 1879, classified the inland waterways as main and secondary routes.

Main waterways must, under the above-mentioned law, possess mooring accommodation with a depth of at least 2 metres, and locks measuring 38,50 × 5,20 metres, while, in the case of canals, fixed bridges must leave a clear space of 3,70 metres above the ordinary water level.

The total length of navigable waterways providing mooring accommodation with a depth of 2 metres at all seasons amounted, in 1913, to 5,556 kilometres, made up as follows :—

Rivers and streams (including estuaries).	2,184 km.
Canals	3,372 km.

The total length of canalised rivers and canals equipped with locks measuring at least 38,50 × 5,20 metres amounted on the same date to 4,630 km., made up as follows :—

Canalised rivers	1,778 km.
Canals	2,852 km.

Finally, the total length of the waterways fulfilling the two conditions which are indispensable for the passage at all seasons of craft measur-

ing 38,50 metres in length and drawing 1,30 metres amounted to 4,875 km., made up as follows :—

Rivers and streams (including estuaries)	2,128 km.
Canals	2,747 km.

Owing to the restoration to France of the waterways of Alsace and Lorraine, the entire French system of navigable waterways, including the Rhine from its junction with the Lauter as far as the Swiss frontier, now amounts to 17,400 km., of which 11,791 km. are actually used for navigation ; this total comprises :

Rivers, streams, lakes and ponds	6,543 km.
Canals	5,248 km.

The total length of waterway which should be navigable by barges *(péniches)* of 300 tons is at present 5,282 km. This total comprises :—

Rivers and streams (including estuaries)	2,205 km.
Canals	3,077 km.

Account must, however, be taken of the considerable destruction wrought by the enemy in the liberated districts. Although some remarkable reconstructive work has been accomplished, and has now almost been completed, much still remains to be done.

Out of 1,036 km. of navigable waterways which been destroyed at the time of the Armistice, 969 km. have now been reopened for navigation, and have been deepened sufficiently (although they do not always attain the minimum standard depth of 2 metres) to permit the passage of small 300-ton barges carrying a reduced cargo. Out of 1,120 structures which had been destroyed, 890 have now been repaired, including a large number of them which have been adapted for temporary use.

Moreover, work is now being carried out in order to allow the passage of 300 ton barges on :—

The Canal from the Rhone to the Rhine . .	186 km.	260 km.
The Orleans Canal	76 km.	

A Government order dated February 12th, 1920, included in the programme of works to be carried out, the enlargement of the two following navigable waterways, in order to admit the passage of 300-ton barges :

The Berry Canal	206 km.	380 km.
The Nivernais Canal	174 km.	

To the above must be added the Canal du Midi and its lateral canal leading to the Garonne : 433 km.

This same Government order, dated February 12th, 1920, also recommended that steps should be taken to convert a certain number of navigable waterways in order to enable them to take vessels of 600 tons ;

in this category were included the Canal du Nord and the canals connecting the Rhone with the Rhine, the Rhine with the Seine, and the lower basins of the Saar and the Rhine with the northern system of France and the port of Dunkirk.

Finally, we would mention, among the important navigational works to be carried out, the alteration in the channel of the Seine between Bougival and Rouen, which will provide mooring accommodation to a depth of 4,50 metres, and which was the subject of a Government order dated March 22nd, 1919 ; the works on the channel of the Rhone between the Swiss frontier and the sea, with the three-fold object of ensuring navigation and obtaining hydraulic force and irrigation ; and the works on the channel of the Rhine between Huningues and Strasburg, in order to obtain motive force for navigational purposes.

The inland ports which handled a traffic exceeding 10,000 tons in 1913 numbered 678 ; of these, 273 ports served rivers and 405 served canals.

The restoration to France of the system of waterways of Alsace and Lorraine has increased to about 700 the number of river and canal ports capable of handling yearly a traffic exceeding 10,000 tons. Moreover, during the war, the State established on such navigable waterways as remained in use a large number of ports—some connected and some unconnected with railways—and also provided berthing and mooring installations at these ports and furnished them with the necessary plant. Some of these works are fated to disappear with the circumstances to which they owe their existence, but the greater number of them will be maintained, in particular the 22 new railway connections (which will form an addition to the 88 connections which existed before the war) and the greater part of the loading and unloading appliances which were installed in the old ports and in the new establishments.

(b) River and Canal Craft.—The last pre-war census of river and canal craft, which was taken in 1912, showed that the French inland navigable waterways possessed 15,141 ordinary transport vessels of more than 3 tons, which collectively could carry, when fully loaded, 4,035,199 tons. The above total of vessels was made up as follows :—

Vessels of more than 300 tons	8.601
» » from 201 to 300 tons	1,913
» » from 101 to 200 tons	1,453
» » from 3 to 100 tons	3,174

As regards nationality, these vessels consisted of :—

French	12,483
Belgian	2,168
German	475
Various nationalities	15

There were, moreover, 738 mechanically propelled trading vessels, of all sorts, representing 95,296 steam h.p. ; 62 of these vessels, representing 17,021 steam h.p., were of foreign nationality.

Of these vessels 205 were normally used to carry passengers, 114 to carry goods, while 361 were used as tugs and 58 for towing purposes on a submerged chain or cable.

The Navigation Department of the Ministry of Public Works has not held a complete census of river and canal craft since the war, but in 1920 the Military Commission on Inland Navigation and Sea-ports held a census of vessels of 50 tons or more, on behalf of the War Office. This census yielded the following results for the whole of the French navigable waterways, including the three Departments of Alsace and Lorraine:—

Ordinary transport vessels of more than 5 tons: 11,265, of which 9,506 were French.

Mechanically propelled trading vessels: 734, of which 682 were French.

The first category, therefore, in comparison with the figures for 1912, shows a deficit of

15,141 — 11,265, or 4,276; of which
12,483 — 9,506 or 2,977, were French vessels.

But it should be pointed out that the statistics for the two years are not strictly comparable, for the statistics of 1912 include all vessels up to 3 tons, while those of 1920 deal only with vessels up to 50 tons. On the other hand, the 1920 census covered the navigable waterways of Alsace and Lorraine. If we deduct from the total figures for 1912 the number of vessels of from 3 to 50 tons (which may be estimated at 1,684), and if we also deduct from the total figures for 1920 the number of vessels plying on the navigable waterways of Alsace and Lorraine (which amounts to 3240), it will be seen that the deficit of French vessels over 50 tons in 1920, as compared with 1914, is; 10,819 – 9, 172, or 1,647. If we add to this number the vessels of less than 50 tons and also those which were destroyed in Belgium, the deficit in the French river and canal fleet owing to the war may be estimated at 2,000 units.

As regards the second category, the pre-war figures have not been appreciably modified.

To the French inland water transport fleet should be added the barges and tugs of the Rhine, which were obtained from Germany and which have just come into French possession by virtue of Article 357 of the Treaty of Versailles, namely:

Barges: 254,150 tons.
Tugs: 23,750 hp.

The French river craft tonnage has, none the less, suffered serious losses, which have to be made good by Germany in accordance with Article 236 of the Treaty of Versailles.

2. *Traffic.*

In 1914 the French State possessed no river or canal craft used for trading.

In the course of the war the insufficiency of means of transport on the various navigable waterways, and especially on the Lower Seine and the

Seine estuary, where provision had to be made for exceptionally heavy traffic, induced the State to acquire and order the construction of a certain number of tugs. Moreover, it proved necessary, at the end of the war, to despatch to the canals of the East and North, as they gradually became fit for use, a large part of the barges which had been used on the Seine during the war, and had now become indispensable for the canals. The French State therefore gave orders for the construction of craft specially for use on the Seine in replacement of the barges taken away for other districts.

These craft, consisting of tugs and barges belonging to the State, are worked by the "Office National de la Navigation," which had in use on the Seine in 1920, 60 barges, representing a total of 24,700 horse power, and 69 tugs, representing a total tonnage of about 42,500 tons.

As regards the volume of traffic, the total tonnage of merchandise transported on the navigable French waterways amounted in 1913 to 41,896,754 tons.

For the year 1914, five months of which were affected by the war, the total was 16,267,897 tons — a reduction of 32 % in comparison with 1913, account being only taken of the traffic on the routes exploited in the zone unocupied by the enemy; this traffic amounted in 1913 to 23,944,435 tons.

The worst year was 1916, when the total was only 13,320,035 tons.

The traffic then rose progressively till 1918:

1916	15,142,350 tons.
1917	16,076,120 »
1918	17,762,538 »

This last total represents an increase of 9,1 % compared with 1914, and a reduction of 25,8 only compared with 1913.

The returns for the year 1919 showed a total of 17,202,511 tons, a little below that of 1918, in spite of the incorporation of the Alsace-Lorraine system. The figures for 1920 are not yet exactly known, but, judging from the results obtained during the three first quarters, ande ven allowing for a considerable reduction in the fourth quarter, the total tonnage of merchandise which will have been transported in 1920 may be estimated at about 21,500,000, which represents an increase of 32,1 % compared with 1914, and a decrease of 48,7 % compared with the total pre-war traffic of 41,896,764 tons.

It is interesting to note the considerable impulse given to navigation during the war, especially in the course of the year 1918, on the Lower Seine between Havre, Rouen and Paris. The tonnage of merchandise transported from Rouen (coming from Havre and Rouen) to Paris was in fact as follows:

1913	3,491,739 tons.
1914	3,087,509 »
1915	5,182,164 »
1916	6,206,700 »
1917	6,360,004 »

1918	3,234,700 tons.
1919	5,331,558 »
1920	3,933,352 »

At present, mainly in consequence of the reduction in the deliveries of English coal, the traffic on the Lower Seine is tending to return to the pre-war figure, though it is still a little higher.

3. *Exploitation.*

Before 1914, the State did not intervene in the exploitation of inland waterways, except in rare cases, with a view to organising and regulating haulage.

Speaking generally, navigable waterways were constructed and maintained by the State, but the material and the haulage were provided almost exclusively by private enterprise, and this also applied in regard to the exploitation, properly so called, of navigable waterways.

The exigencies created by the war, the necessity of obtaining not only good order and security of navigation, but also the greatest possible results from the craft available, induced the State, which in war time had unlimited power of requisitioning, to regulate the exploitation of navigable waterways with the greatest care, so long as hostilities lasted.

When the system of military exploitation of navigable waterways came to an end, a Decree was issued, dated December 31st, 1919, temporarily maintaining in being a certain number of war organisations and regulations, in order to permit the Government to give priority to certain transport operations which were recognised as indispensable in the interest of the country.

A Decree of November 2nd, 1920, suspended a certain number of the provisions of the Decree of December 31st, 1919, and de-controlled transportation by water. It did not, however, appear possible to dispense entirely with any regulation of the traffic, as had been done in the pre-war period, and a more recent Decree of January 11th, 1921, has established certain general rules organising the system of transport by water by virtue of the general supervisory powers possessed by the Government. This Decree lays down certain minimum conditions which have to be incerted in freight agreements and bills of lading, and provides for the creation in the principal loading centres of free freight offices, managed and administered by the interested parties.

4. *Freight.*

The fixing of freight rates, which was entirely free from control prior to 1914, has undergone a similar evolution. During the war, under the system of requisitions, obligatory freight tariffs were imposed for inland

water transport. These obligatory tariffs were drawn up by the Minister of Public Works, in accordance with the views of the Advisory Committee on Inland Water Transport.

The Decree of December 31st, 1919, authorised the Minister to continue to fix the maximum charges for haulage and freight, in order to prevent the imposition of excessive tariffs, which would otherwise have resulted inevitably at a moment when the country was, in the throes of a transport crisis.

Since November 15th, 1920, freight has been de-controlled ; the object of the freight organisations provided for by the new instruction for inland waterways is to regularise and control this traffic in such a way as to prevent the abuses which frequently occurred under the conditions of absolute liberty which obtained in pre-war days.

However, in spite of all precautions, freight tariffs — being governed by general economic laws, and influenced, in certain cases, to a remarkable degree by the price of coal — have risen, and still remain raised, to prices considerably above those of 1914.

For instance, in the case of the Seine, where all vessels are towed and where, in consequence, the price of coal forms an essential element in the cost of freight, the freight from Rouen to Paris, which before the war ranged from 3.50 to 5.00 francs per ton according to the state of the water, rose progressively to an average of 6.50 francs in 1916, 9 francs in 1918, and 14 francs in 1919.

From November 1919, the rise in freight charges, which kept pace with that of the price of coal, assumed considerable dimensions. The charge amounted to 17.85 francs on November 15, 1919, 29.40 francs on December 10th, and 32 francs on February 1st, 1921.

This price remained the maximum until June 1920 ; it then fell to 24.50 francs on July 1st, 22.05 on August 1st, 20.30 francs on September 1st. It varies to-day between 15 and 17 francs, fluctuating in close conformity with the price of transport by rail.

Similar results are recorded on the canals in the Northern departments : the cost of transporting a ton of coal from Bethune to Paris, which varied from 5 to 7 francs before 1914, rose to 16 francs in 1917, to 25 francs in 1919 and to 35 francs in 1920. It has fallen at present to 25 francs, and shows a tendency to fall further, which, no doubt, will reduce it soon to the same cost as transport by rail, *i.e.*, 22 francs.

5. *Fuel.*

Inland water transport is responsible for an average annual consumption of fuel which may be estimated at about 350,000 tons, made up as follows : tug service, towing, river and canal transport.

Handling in river ports	325,000	tons.
Dredging	10,000	»
Elevating works	15,000	»

Of these 350,000 tons of fuel about four-fifths are briquettes and one-fifth coal.

Three-quarters of this fuel is imported (English briquettes).

The other quarter only consists of coal of French origin.

The pre-war prices were 30 to 35 francs a ton for coal and 20 to 34 francs a ton for briquettes, according to place of origin — the last mentioned price being that of briquettes coming from the mines of the Centre and the South.

The price of English briquettes, after having risen progressively during the years of the war up to 110 to 130 francs per ton — a rate which was maintained with a few variations in 1917, 1918 and during the first half of 1919 — advanced rapidly at the end of the same year until it reached 500 francs (or 508 francs, making allowance for a rebate of 92francs), and came down at the end of 1920 to 258 francs, allowing for the rebate. Its present net cost can be reckoned at 220 to 230 francs.

French briquettes maintained a level of between 56 to 65 francs a ton up to 1918 ; as a result of increased taxes, the cost rose to 310 or even to 365 francs in June 1920. The tax has been reduced since December 10th, 1920, and the present price varies according to the origin of the fuel. The price of coal from the mines of Northern France is at present (including increased tax) 161 francs and upwards. The coal from the Saar Valley is reckoned at 136.50 francs.

All these are pithead prices, or in the case of imported coal price at the port of delivery.

These considerable fluctuations in the price of the various coals since 1914 explain and justify the corresponding variations in the freight rates which were pointed out in the previous section.

6. *General Financial Situation.*

In spite of the really excessive rates reached by freights in the circumstances which we have just described, the French inland water transport industry passed through the period included between July 1st, 1919, and May 1st, 1920, without encountering excessive difficulties. In consequence of the general transport crisis, which was then in its acutest phase, the railways—being unable to satisfy all the demands made upon them by commerce and industry—fell back upon the waterways, which thus obtained considerable custom. But since the improvement in the conditions of transport by rail, the situation as regards inland water transport has been considerably modified and that industry has had to pass through a particularly difficult period in the course of the year 1920, especially as regards that portion of the industry which is dependent on tugs, as the high cost of this form of traction makes it impossible to compete satisfactorily with the railways, which have therefore captured a considerable part of the custom of the waterways.

The present reduction in the price of coal has made it possible, both on the Seine and the Rhine, to return to freight rates which do not exceed

the cost of transport by rail ; but since then we have had to face the general economic crisis and the reduction in the importation of coal from England ; the consequence is that water transportation, like many other industries, is at this moment undergoing a serious crisis which is immobilising a considerable proportion of the river craft, and this will inevitably result in bringing about considerable reductions in freight rates.

III.

MARITIME NAVIGATION.

A. — Situation of Commercial Maritime Ports.

1. *Material.*

(a) Berthing stations (including wharves, piles and mooring buoys) in the whole of the French sea-ports) :—

Total number of stations for vessels of all sizes . . . . . 1,100.

Number of these stations, on January 1st, 1921, capable of taking vessels drawing more than 6 metres of water . . . . . 654.

NOTE.—Of these 654 stations for vessels drawing more than 6 metres, 184 have been constructed during the war.

(b) Plant :—

Total number of motor cranes in French ports about 2,000.

The number of motor cranes in French ports before the war was only 1,240 ; this number was increased during the war, either by the State (about 350 machines) or by the Chambers of Commerce, or firms granted a concession for public or private plant (about 550, of which about 200 were obtained second-hand from English and American sources).

French ports have been equipped during recent years with improved mechanical appliances, specially adapted for handling coal and ores *(transbordeurs)* and grain (fixed and floating elevators, " Poulsens, " etc.).

The length of railways in the ports has been increased since August 1st, 1914, by 850 kilometres, of which about 500 kilometres were laid by the French State, and 350 kilometres were obtained from English and American stocks left in the ports.

There are 69 repairing installations, including :—

33 dry docks *(formes de radoub)* ;
22 dry dock frames *(grils de carénage)* ;
10 slipways ;
4 floating docks (including two large docks of 4,200 tons, supplied by Germany).

(c) Capacity for Goods :—

Capacity of quays and sheds in ports	1,800,000 tons.
Capacity of goods depots	1,700,000 tons.
Total	3,500,000 tons.

This capacity is calculated on the basis of the maximum utilisation of space in the ports, which occurs when almost the entire available area is occupied by goods. The normal capacity of ports (as is approximately the case at the present time) is 1,000,000 tons ; when fully utilised this capacity has attained 2,500,000 tons.

2. *Traffic.*

The traffic in the forty principal French ports from 1913 to 1920 is contained in the following table :

	Goods unloaded	Goods loaded	Total
1913	31,884,516	10,412,149	42,296,665
1914	27,223,519	7,781,979	55,005,498
1915	40,155,884	5,110,019	45,265,903
1916	51,502,755	5,170,343	56,673,098
1917	45,996,589	4,590,895	50,587,484
1918	48,931,219	4,617,632	53,548,871
1919	37,625,091	5,176,438	42,801,529
1920	34,000,000	7,000,000	41,000,000 (1)

The number of passengers embarked and disembarked in 1920 was about 2,535,000.

3. *Works.*

1. *Upkeep.*—The work of construction in French ports suffered comparatively little as a direct result of hostilities, but, on the other hand, during the war and even after the Armistice, it was only possible to carry out such works for upkeep and repairs as were absolutely indispensable for the existence of the maritime establishments, and even then only so far as the difficulties connected with the supply of labour and material permitted. The first necessity was to maintain ports at the depth necessary for the reception of cargoes of military and civilian supplies, and to see that

(1) Provisional total.

the structures were maintained in repair. It was necessary to postpone work of a less urgent nature, such as the relading of piers and platforms, calendering, paving and the internal upkeep of work buildings, while even the upkeep of quay walls has often been neglected.

During the last two years a serious effort has been made to restore the ports to normal conditions, and this effort will have to continue during the coming years, in spite of the rise in the price of labour and material, which causes a considerable increase in expenditure, as is shown by the following figures. While the 1914 Budget provided for 8,500,000 francs to be devoted to the upkeep of sea-ports, this figure had to be increased in 1919 to 21,300,000 francs, and in 1920 to 35,5000,000, while in the 1921 Budget it reaches a total of 46 millions.

This last sum is made up as follows :—

Dredging operations	19	millions
Working expenses	4	»
Ordinary upkeep	11	»
Ordinary repairs	12	»

The grant for these purposes will certainly have to be maintained for seve al years.

2. *Works of Improvement and Extension.*—While new works of construction necessitated by the requirements of the French and Allied armies, and which were essential for the provisioning of the civilian population, were carried out throughout the war, the Government Department concerned was studying post-war requirements, and drawing up a plan of the work which would be necessary in order to enable sea-ports to cope with the traffic which was to be expected with a view to the economic development and restoration of the country.

From the date of its institution in October 1917, the Supreme Board of Public Works was instructed to draw up for each port a systematic programme of the work to be undertaken and accomplished within a period of from 15 to 20 years, with the financial aid of the Chambers of Commerce and other local bodies. The work of investigation, which was entrusted to special committees, resulted in a series of programmes being drawn up ; these seem, in their general lines, taking into consideration present-day prices, to make provision for a total of 3 milliards 300 millions, which may be summarised as follows :

Expenditure to be incurred through the completion of work already authorised by Parliament	2 milliards.
Draft laws or decrees in preparation	700 millions.
Plans in preparation	600 millions.

About half of this sum will be covered by means of contributions made by the parties concerned, who will also be called upon to advance to the State its share in the expenditure.

The expenditure foreseen for the present year amounts to 200 millions; consequently, the time-limit for the completion of the work will be at least sixteen years.

B. — The Fleet.

1. *The French Mercantile Marine. From 1914 to 1920.*

	Total tonnage.	Steamships.	Sailing Ships.
Before the War (July 31st, 1914)	2,555,775	1,994,265	561,510
After the Armistice (December 31st, 1918)	1,886,819	1,558,547	328,272
On January 1st, 1920 :			
Private Property	2,076,963	1,758,190	318,212
State Property	452,943		
On January 1st, 1921 :			
Private Property	2,418,754	2,102,542	316,212
State Property	452,943		
Ex-German Ships	266,973		
Grand Total on January 1st, 1921	3,138,670		

2. *Traffic.*

(a) Shipping Services.

The shipping services are far from having regained their pre-war efficiency, even when the newly-established lines are taken into account. The approximate figures for those lines which start from the five principal ports (Dunkirk, Havre, Nantes-St. Nazaire, Bordeaux and Marseilles) are as follows :

Lines existing before the war	194
Discontinued services	63
Lines with irregular services	17
Newly created lines	48

The shipping authorities at Marseilles make the following statement in this connection :

"It must be noted that there has been no improvement since the cessation of hostilities; on the contrary, the services are being more and more reduced, especially since 1920, as, owing to the failure of the crops in Algeria, there is a slump in local shipping. The goods carried by steamer amount to hardly more than a few tons on the voyage home; the number of passengers is also gradually decreasing.

"There is no prospect of new lines being started or existing services being improved either at present or in the near future."

(See Annex I.)

(b) Passenger Traffic.

The figures for passengers who embarked in French ports are as follows:

1913	2,912,278
1920	2,535,000

Annex II gives, among others, the figures for the passenger traffic of a few of the steamship companies.

The figures for the Compagnie Générale Transatlantique, for instance, are as follows:

1913	416,971	passengers
1919	428,388	»
1920	446,861	»

The figures for the Messageries Maritimes are as follows:

1913	205,995	passengers
1919	79,196	»
1920	140,000	»

(c) Tonnage of Goods.

The figures for goods exported and imported by sea, given in maritime tons, are as follows:

	Imports	Exports	Total
1913	30,192,915	9,860,629	40,053,544
1919	32,217,133	3,116,024	35,333,157

The above totals were furnished by the Customs Administration. The first total was published in the "General Tables for Commerce and Shipping" ("Tableau général du commerce et de la navigation"), Volume 1, page 67, and the second will appear in the next number of that publication. They do not exactly correspond with the figure given in the Note from the Department for Sea-ports.

It will be some months before the figures for 1920 can be ascertained by the Customs Administration.

Another Government Department was able, however, to furnish the following information with regard to this year :

	Imports	Exports	Total
1920	33,426,600	7,072,100	40,498,700

3. *Rates.*

(a) Increase in Passenger Rates.

Only a few examples of this increase can be given. The following are the fares for first-class passages on some of the most frequented lines during the period before the war, immediately after the war and at the present time :

	1914	1918	1921
	Fr.	Fr.	Fr.
Havre-New York (Cie Générale Transatlantique)	500	665	2,900
St. Nazaire-Martinique (Cie Générale Transatlantique)	900	1,075	2,300
Marseilles-Algiers (Cie Générale Transatlantique)	100	160	300
Bordeaux-Buenos Ayres (Chargeurs Réunis.)	625	1,095	5,100
Bordeaux-Dakar	475	987	2,295
Marseilles-Saigon	1,100	1,716	3,545
Marseilles-Port-Said (Mess. Marit.) .	375	585	1,575
Marseilles-Tamatave	1,295	2,340	3,860
Marseilles-Shanghai	1,680	2,680	5,450

(See Annex II.)

(b) Increase in Goods Freights.

It is impossible to give exact figures for this increase. The following figures will serve as an example :

Place of Origin	Destination	1914	1918	1920
Australia	Great Britain	25	150	80
Saigon	Marseilles	23	500	115
Bombay	Great Britain	15-17	260	62
Bordeaux	Cardiff	5	50	8 dol.
United States of	France	10-11	—	8 dol.
America.....	Great Britain	—	56	—

(See Annex III).

4. *Fuel.*

(a) Total Consumption according to Nature of Fuel.

It is impossible to give the figures for the total consumption of coal or mazout of the whole mercantile marine. The total consumption may be estimated at, roughly, 3 million tons.

The figures for the total consumption of a few of the principal shipping lines are given below as an example.

	1913	1919	1920
Compagnie Transatlantique .	942,156 tons	422,367 tons	545,423 tons
Chargeurs réunis	215,700 »	167,150 »	243,000 »

(b) Origin of Fuel.

Before the war, fuel (exclusively bunker coal) was obtained principally from the United Kingdom and secondly from Belgium, Germany and France. In 1920, bunker coal was obtained mainly from the United States. At present it comes chiefly from Germany ; but also from England, Belgium and even Japan, etc.

(c) Cost Price per Ton.

The following table shows the cost price per ton paid in 1914-1918 and 1920 by French shipowners for coal at the ports of Havre, Bordeaux and Marseilles.

Port of Importation.	1914		1918	1920
	Large and	Pit-mouth	Large and	Pit-mouth
Havre.	34,50	29,50	135,00	300,00
Bordeaux	34,00	30,25	166,50	270,00
Marseilles	35,00		232,50	436,50

In 1918 and 1920 there was no difference in the price of large or pit-mouth coal, because, on account of the shortage of fuel, the shipowners were obliged to take any coal they could obtain.

The figures for the year 1918 are based on the prices demanded by the Shipping Department, which, under the requisition system, was alone entitled to supply requisitioned ships.

The figures for the year 1920 show the cost price paid by shipowners, taking into account the cancellation of insurance policies by which the owners had benefited since August 12th.

The cost price of coal paid by some of the large shipping companies may be quoted here as an illustration :

	1913	1919	1920
Compagnie Transatlantique	31 fr. 30	120 fr. 55	280 fr. 42
Chargeurs réunis	32 fr. —	166 fr. —	350 fr. —

(See Annex II.)

5. *General Financial Situation.*

It has not been possible to obtain information on this matter from the companies and shipowners concerned.

The annexed note, showing the fluctuation in the price of the principal maritime securities according to the quarterly quotation in the "Illustration économique et financière" (February 1921) contains some information on this subject.

(See Annex IV.)

ANNEX I.

SHIPPING SERVICES.

Direction of Dunkirk.

Position before the war	*Position on February 1st, 1921*
1. Line from Dunkirk to Brest and from Brest to Nantes (Compagnie Chevillote).	Discontinued.
2. Line from Dunkirk to Boulogne, Saint-Malo (ditto).	
3. Regular service between Dunkirk, Le Havre, Nantes, Bordeaux, Le Havre (Compagnie Générale transatlantique).	—
4. Line from Dunkirk to Canada (ditto).	
5. Service between Dunkirk and Spain (Société Anon. des Hauts-Fournaux, Forges et Aciéries de Denain et d'Anzin).	—
6. Service between Dunkirk and Portugal (ditto).	
7. Route Dunkirk-Hamburg (Worms et Cie).	2 monthly sailings.
7 *(a)*. Line Boulogne-Brest and Bordeaux, La Rochelle-Pallice, Nantes, Bayonne and Pasages (ditto).	2 or 3 sailings per month according to tonnage.

7 *(b)*. Dunkirk, Antwerp, Danzig (Worms).	2 monthly sailings.
8. Line Boulogne, Le Havre (Bretel Frères).	Irregular.
8 *(a)*. Service Calais-Boulogne (ditto).	—
9. Line Dunkirk, Bordeaux, Marseille, Cette (in connection with lines to America and the Far East), run by other companies (Cie. des Bateaux à vapeur du Nord).	—
10. Line Dunkirk, Saint-Nazaire, with connection to America (ditto).	—
11. Line Dunkirk, Boulogne, Lorient, La Rochelle, Rochefort (ditto).	—
12. Line Dunkirk, London (ditto).	—
13. Line Dunkirk, Bayonne (ditto.)	—
14. Line Dunkerque, Algeria (ditto).	—
15. Line Dunkirk, Tunis (ditto).	—
16. Line Dunkirk, Le Havre (ditto).	—
17. Line Dunkirk, Hamburg (ditto).	—
18. Direct service Dunkirk, Caen, Cherbourg (Cie. des Bateaux à vapeur du Nord).	Irregular.
19. Line Dunkirk, Haïphong and Saïgon (ditto).	—
20. Regular service Dunkirk, Antwerp (ditto).	—

21. Line Dunkerque, Buenos Ayres (fast) (Chargeurs réunis).	1 or 2 sailings per month.
22. ditto (Direct).	Suspended.
23. Line Brazil 1, from Dunkirk, Line Brazil 2, (ditto).	1 or 2 sailings per month.
24. Line to the West Coast of Africa from Dunkirk (ditto).	1 sailing per month.
25. Line to Indo-China (ditto).	1 sailing per month.
26. Regular Service from Dunkirk to Rotterdam (Cie. franco-néerlandaise de navigation à vapeur).	1 weekly sailing.
27. Daily postal service by French mail steamer from Calais to Dover (Cie. du Chemin de fer du Nord).	Re-established on August 9th, 1920.
28. Line Dunkirk, Algeria (Compagnie havraise péninsulaire)	Irregular.
29. Line Antwerp, Calais, Sydney, Tahiti (Cie. nationale de l'Océanie) (has never called at Calais).	Not yet in existence.
30. Regular service Dunkirk, Boulogne, Caen (Cie. normande de navigation à vapeur).	A single ship from Boulogne to Caen.
31. Regular service Dunkirk to Senegal (Ligne Charles Scholl).	Discontinued.
32. Regular line Dunkirk, Bayonne (Ligne H. Julia et Cie).	—
33. Line Dunkirk, Copenhagen and Baltic Ports (Cie. Française à vapeur "France-Baltique").	1 sailing per month.

Direction of Havre.

Position before the war.	*Position on February 1st, 1921.*
1. Line from Havre to Indo-China and Japan (Messageries Maritimes).	Irregular.
1 (*a*). Le Havre-Marseille (ditto).	—
2. Line Le Havre, Brest (Chevillote).	Discontinued.
3. Line Le Havre to Lorient and Nantes (ditto).	—
4. Regular service from Rouen to Morocco (Transp. maritimes Paris, Rouen, Maroc).	—
5. Line Le Havre-Morocco (Cie. Générale trans.).	Regular service.
6. Line Le Havre-Canada (ditto).	—
7. Line Le Havre-New York (ditto).	—
8. Line Le Havre-Fort de France and Colon (ditto).	—
9. Line Le Havre-Mexico (ditto).	—
10. Line Le Havre-Tahiti (ditto)	Established since the war.
11. Line Le Havre-South Pacific (ditto).	—
12. Line Rouen-Bordeaux (Worms & Cie.).	Amalgamated with the Service Le Havre-Bordeaux.
13. Service Rouen-Pasages (ditto)	Discontinued.
14. Service Rouen-Bayonne and La Rochelle (ditto).	—

15. Service Rouen-Dunkirk (Worms et Cie.)	Discontinued.
16. Service Rouen-Brest-Nantes (ditto).	—
17. Service Rouen-Lorient (ditto).	—
18. Service Rouen-Hamburg (ditto)	—
19. Service Rouen-Rotterdam (ditto).	Replaced by the service Le Havre-Rotterdam.
20. Service Le Havre-Bordeaux (ditto).	Continued.
21. Service Le Havre-Hamburg	Discontinued.
22. Service Le Havre Bremen (ditto)	—
23. Service Le Havre-Brest (ditto).	—
24. Service Le Havre-La Rochelle (ditto).	—
25. Service Le Havre-Bayonne (ditto).	—
26. Service Le Havre-Pasages (ditto).	—
27. Service Le Havre-Nantes (ditto).	Discontinued.
28. Service Le Havre-Lorient (ditto).	—
29. Service Dieppe-Grimsby (ditto)	Continued.
30. Service Le Havre-Cherbourg (Bretel Frères).	—
31. Service Le Havre St.-Vaast (ditto).	Discontinued.
32. — Le Havre-Calais (ditto).	Continued.
33. Line Le Havre, West Coast of Africa Postal Service (Chargeurs réunis)	Discontinued.

34. Line Le Havre, West Coast of Africa, Commercial service (Chargeurs réunis).	Continued.
35. Line Le Havre-Indo-China (ditto).	—
36. Regular service from Rouen to Algeria and Tunis (Lignes Conseil, Société des Affréteurs réunis).	—
37. Regular line between Algeria, Spain and Rouen-Paris (Le Qualles et Fils).	Discontinued.
38. Service from Tréport to London (Ser. maritimes du Tréport).	—
39. Service from Tréport to various English ports. (ditto).	—
40. Line Le Havre, Morocco and Algeria (Société navale de l'Ouest).	—
41. Line Le Havre-Madeira (ditto).	—
42. Line Le Havre-Lisbon (ditto).	Service continued.
43. Line Le Havre, Barcelona, Marseilles (ditto).	Service continued.
44. Line Le Havre, Madagascar, Mauritius, La Réunion (Cie. havraise péninsul.).	Slower service.
45. Line Le Havre-Algeria.	—
46. Coal Transport Le Havre. (Delmas frère).	Discontinued.
47. Regular service Le Havre-Caen (Cie. normande de navigation à vapeur).	Continued; also the services Le Havre-Honfleur and Le Havre-Trouville.
48. Line Le Havre-Saint-Malo (regular service Le Havre-Saint-Malo) (Le Gualès de Mèzaubran).	Irregular.

49. Line Le Havre-Paris (Cie. générale de navigation Seine).	Discontinued (Lloyd Séquanais).
50. Line Le Havre-Morlaix (Cie. des paquebots à vapeur du Finistère).	Discontinued.
51. Service from Carteret to Jersey (Cie. rouennaise de navigation).	—
52. Service from Rouen to Havre (ditto).	—
	53. Le Havre-Bristol (Worms).
	54. Le Havre-Brazil (Chargeurs réunis).
	55. Le Havre-La Plata (ditto).
	56. Le Havre-Portugal-Mediterranean (Société navale de l'Ouest).
	57. Le Havre-Eastern Mediterranean (ditto).
	58. Le Havre-West Africa (ditto).
	59. Le Havre-Antwerp (ditto).
	60. Le Havre-Marseilles (Cie. Havraise péninsulaire).
	61. Le Havre-Madagascar (ditto).

Direction of Nantes.

Position before the war.	*Position on February 1st, 1921.*
1. Service from Lorient to Brest (Chevillotte frères).	Discontinued.
2. Service from Nantes to Brest (ditto).	--

3. Service from Nantes to Algiers and Oran (Chevillotte frères).	—	
4. Service from Lorient to Algiers and Oran (ditto).	—	
5. Service from Nantes to Saint-Nazaire, Bordeaux, Tangiers, Gibraltar, Algeria, Tunis (Cie. générale transatlantique).	Continued.	
6. Serv ce from Nantes to Casablanca (ditto).	Continued.	
7. Service from Nantes to Saint-Nazaire, Bordeaux, La Pallice (ditto).	Discontinued.	
8. Service from Nantes to London (ditto).	Continued.	
9. Service from Nantes to Liverpool (ditto).	—	
10. Line from Saint-Nazaire to the Antilles and Central America (ditto).	—	
11. Line from Saint-Nazaire to Santander, Le Havre and Vera Cruz (ditto).	—	
12. Service from Nantes to Bordeaux (Worms et Cie.).	Nantes is no longer the chief port of the line.	
13. Service from Nantes to Hamburg (ditto).	—	—
14. Service from Nantes to Bayonne (ditto).	—	—
15. Service from Nantes to Pasages (ditto).	—	—
16. Line from Nantes to Bastia (ditto).	—	—

17. Coal transport between Bristol and Nantes, Bristol and Saint-Nazaire (Ligne Delmas frères).	Discontinued.
18. Regular service from Nantes to Guiana (Cie. nantaise de navigation à vapeur).	Discontinued.
19. Traffic between Lorient, Cardiff, Newport, Swansea, Port Talbot (Sté. Marecesche et Cie.).	Services continued.
20. Coal transport between Lorient, Cardiff, Newport, Swansea, Barry Docks, Port Talbot, (Stéf. Le Brise, Bois et charbons).	— —

Direction of Bordeaux.

Position before the war.	*Position on February 1st, 1921.*
1. Line from Bordeaux to Algiers and Oran (Chevillotte frères).	Discontinued.
2. Line Morocco, Bordeaux, Casablanca (Cie. générale transatlantique).	Service continued.
3. Line Bordeaux-London (ditto).	Discontinued.
4. Line Bordeaux-New York (ditto).	Service continued.
5. Line Bordeaux-Pauillac to Fort de France and Colon (ditto).	Starts from Le Havre.
6. Line from Bordeaux to Havanna, Vera Cruz, New Orleans (Cie. gén. trans.).	Replaced by the Bordeaux-Baltimore line.
7. Line from Bordeaux to Las Palmas, Havanna, New Orleans (ditto).	Discontinued.

8. Service from Bordeaux to Havre (Worms et Cie.).	Continued.
9. Service from Bordeaux to Rouen (ditto).	—
10. Service from Bordeaux to Nantes (ditto).	—
11. Service from Bordeaux to Bayonne (ditto).	—
12. Service from Bordeaux to Pasages (ditto).	—
13. Service from Bordeaux to Antwerp (ditto).	—
14. Service from Bordeaux to Hamburg (ditto).	—
15. Service from Bordeaux to Bremen (ditto).	Discontinued.
16. Service from Bordeaux to Dunkirk and Boulogne (ditto).	Continued.
17. Service from Bordeaux to Brest (ditto).	—
18. Service from Bordeaux to La Rochelle-La Pallice (ditto).	—
19. Line La Pallice-Dakar, Montevideo, Buenos Ayres (Chargeurs réunis).	Services continued.
20. Line Bordeaux-Pauillac to Dakar, Konakry, Grand Bassam Postal service Cotonou, Matadi (ditto).	—
21. Line Bordeaux-Pauillac, Senegal, Guinea, Ivory Coast, Dahomey (Gabon).	—
22. Line Bordeaux-Pauillac-Indo-China (ditto).	Starts from Dunkirk.

23. Mail service Bordeaux-Dakar-Buenos Ayres (Cie. de navigation Sud-Atlant.).	Service continued.
24. Commercial line Bordeaux-Dakar, Pernambuco-Buenos Ayres, Bordeaux-Dakar, Bahia, Buenos Ayres (ditto).	—
25. Service from Bordeaux to Gorée, Dakar, the Sudan (Ligne Pascal, Buhan et Cie.).	Discontinued.
26. Service between Bordeaux and the African Coast (Ligne Deves, Chaumet et Cie.).	Re-established.
27. Service between La Rochelle, Bordeaux, Morocco, Algeria and Tunis (Ligne Delmas Frères).	Discontinued.
28. Transport of coal between Bristol and La Rochelle, Bordeaux (ditto).	Discontinued.
29. Line Antwerp, Calais, Bordeaux to Sydney, Tahiti, Numea (Cie. générale de l'Océanie).	—
30. Service from Bordeaux to Gorée Dakar, Gambia and the Sudan (Ligne Maurel et Prom).	Continued.
31. Service Bordeaux-Senegal (Ligne Charles Scholl).	—
32. Service Bordeaux-Morlaix and Saint Brieuc (regular service) (Le Gualès de Mézaubran).	Discontinued.
33. Service Bordeaux, Jersey, Guernsey, Plymouth (ditto).	—
34. Service from Bordeaux and La Rochelle to Copenhagen and other Baltic ports (Cie. française de Bateaux à vapeur France-Baltique).	Service to Copenhagen only.

35. Bordeaux-Liverpool (Cie, générale transatlantique).

36. Bordeaux to the Antilles and Guiana (ditto).

37. Bordeaux-Montreal (ditto).

38. La Pallice-Le Havre, Boulogne-Dunkirk, Antwerp, Rotterdam-Danzig and vice versa (Worms et Cie.).

39. La Pallice-Bordeaux and vice versa (ditto).

40. Bordeaux-Danzig (ditto).

41. La Pallice-St. Nazaire and Nantes and vice versa (Messageries de l'Ouest).

42. La Pallice Algiers-Oran-Tunis and vice versa (Société nationale de l'Ouest).

43. Coasting trade between French ports (Leridon, shipowner at La Rochelle).

44. Coasting trade between French ports (Faustin, shipowner at La Rochelle).

45. From La Rochelle to English ports and vice versa (Delmas et Vieljeux, shipowners at La Rochelle).

46. From La Pallice to Iquique and vice versa (Cie. française d'armement et d'importation de nitrates de soude).

47. Service Bordeaux-Spain (Société des affréteurs réunis).

48. Service Bordeaux - Portugal (Société des affrétteurs réunis).

49. Service Bordeaux-Algeria-Tunis (ditto).

50. Service Bordeaux to the Canaries (ditto).

51. Service Bordeaux-Levant (ditto).

52. Service Bordeaux-Morocco (Cie. des vapeurs français).

53. Service Bordeaux-Spain (Henri Julia et Cie., shipowners at Bayonne).

Direction of Marseilles.

SUBSIDISED LINES.

Position before the war.	*Position on February 1st, 1921*
1. Marseilles - Haiphong every 4 weeks (Messageries maritimes).	Service continued.
2. Marseilles - Yokohama (every 2 weeks) (ditto).	—
3. Marseilles - Australia - New Caledonia (every 4 weeks) (ditto).	—
4. Marseille s- Zanzibar - Madagascar (every 4 weeks) (ditto)	—
5. Marseilles - Aden - Madagascar (every 4 weeks) (ditto).	—
6. Marseilles - Constantinople - Beirut (every 2 weeks) (ditto).	Continued.

7. Marseilles - Alexandria - Beirut (every 2 weeks) (Messageries maritimes).	Continued.
8. Marseilles - Alexandria - Beirut (every 2 weeks) (ditto).	—
9. Marseilles - Oran (weekly) (Compagnie transatlantique).	—
10. Marseilles - Oran - Carthagena (weekly) (ditto).	Discontinued.
11. Marseilles - Oran (weekly) (Transports maritimes).	Continued.
12. Marseilles - Algiers (weekly) (Transatlantique).	—
13. Marseilles - Algiers (weekly) (ditto).	—
14. Marseilles - Algiers (weekly) (ditto).	—
15. Marseilles - Algiers (weekly) (ditto).	—
16. Marseilles - Philippeville - Bône (weekly) (ditto).	—
17. Marseilles - Philippeville (weekly).	—
18. Marseilles - Philippeville - Bone (weekly) (Transatlantique).	—
19. Marseilles - Bougie - Algiers (weekly) (Transatlantique).	Discontinued.
20. Marseilles - Tunis (weekly) (ditto).	—
21. Marseilles - Tunis (weekly) (ditto).	—
22. Marseilles - Bizerta - Tunis - Malta (weekly) (ditto).	—
23. Marseilles - Ajaccio (weekly) (Fraissinet).	Continued.

24. Marseilles - Ajaccio (weekly) (Fraissinet).	Continued.
25. Marseilles - Toulon - Calvi (weekly) (ditto).	—
26. Marseilles - Bastia (weekly) (ditto).	—
27. Marseilles - Bastia (weekly) (ditto).	—

NON-SUBSIDISED LINES.

Position before the war.	*Position on February 1st, 1921.*
1. Marseilles - Le Havre - London (Messageries maritimes).	Continued.
2. Antwerp - Marseilles - Far East (ditto).	Discontinued.
3. Marseilles - Batum (ditto).	Continued.
4. Marseilles - Odessa (ditto).	Continued as far as Roumania.
5. Marseilles - New York fast service (Compagnie Cyprien Fabre).	Continued.
6. Marseilles - New York commercial service (ditto).	—
7. Marseilles - New York mixed service (ditto).	—
8. Marseilles - Cotonu (ditto).	—
9. Marseilles-Buenos Ayres packet boat (Transports maritimes à vapeur).	—
10. Marseilles - Buenos Ayres, cargoes (ditto).	—
11. Marseilles - Buenos Ayres (France-America).	Discontinued.

12. Marseilles - Ægean Sea (Compagnie Fraissinet).	—
13. Marseilles - Black Sea - Danube (ditto).	Continued.
14. Marseilles - Dahomey (ditto).	—
15. Marseilles - Black Sea (Compagnie Paquet).	—
16. Marseilles - Casablanca (ditto).	—
17. Marseilles - Port Vendres (Compagnie Touache).	—
18. Marseilles - Dunkirk (ditto).	Discontinued.
19. Marseilles - Mediterranean - Baltic (Frisch & Cie).	—
20. Marseilles - New York (Vimont & Cie.).	Discontinued.
21. Marseilles - Costanza (ditto).	—
22. Marseilles - Port Vendres - Mentone (coastal transport).	Discontinued as regards Mentone.
23. Marseilles - Tunis (Daher & Compagnie).	Discontinued.
24. Marseilles - Agde - Cannes (Sicard).	Continued.
25. Marseilles - Monaco - St. Tropez (ditto).	Continued as far as Genoa.
26. Marseilles - Rabat (ditto).	Discontinued.
27. Marseilles - Port de Bouc (Compagnie navigation côtière).	—
	28. Marseilles - Algiers (Société maritime nationale).
	29. Marseilles - Oran (ditto).

30. Marseilles - Algiers - Oran (Affréteurs réunis).

31. Marseilles - Cette - Bône (Transports maritimes).

32. Marseilles - Philippeville - Bône (Société maritime nationale).

33. Marseilles - Bougie - Philippeville (Transports maritimes).

34. Marseilles - Tunis (Compagnie mixte).

35. Marseilles - Tunis (Société maritime nationale).

36. Marseilles - Alexandria - Beirut (Affréteurs réunis).

37. Marseilles - Dakar (Maurel & Prom).

38. Marseilles - Morocco - Dakar (Paquet).

39. Marseilles - Casablanca - Dakar (Affréteurs réunis).

40. Marseilles - Kenitra (Société maritime nationale).

Annex II.

COMPAGNIE GÉNÉRALE TRANSATLANTIQUE.

Average Price of Passages according to Classes.

		July 1914	December 1918	January 1921
Havre-New York	1st class...	500	665	2,900
	2nd „ ...	325	400	1,900
(Savoy-Lorraine)	3rd „ ...	130	170	
St. Nazaire-Martinique	1st class...	900	1,075	2,300
	2nd „ ...	600	685	1,325
	3rd „ ...	375	500	
St. Nazaire-Colon	1st class...	1,000	1,200	3,100
	2nd „ ...	650	760	1,600
	3rd „ ...	400	530	
St. Nazaire-Vera Cruz	1st class...	1,200	1,400	3,600
	2nd „ ...	675	850	2,100
	3rd „ ...	350	425	
Havre-Hayti	1st class...	875	800	
	2nd „ ...	450	450	
	3rd „ ...	300	300	
Nantes-Bordeaux-Casablanca	1st class...	140	200	615
	2nd „ ...	110	150	435
	3rd „ ...	70	100	285
Marseilles-Algiers	1st class...	100	160	300
	2nd „ ...	72	115	210
	3rd „ ...	38	60	110

COMPAGNIE GÉNÉRALE TRANSATLANTIQUE *(contd.)*

Tonnage of Goods.

Lines	Tons of Freight					
	Export			Import		
	1913	1919	1920	1913	1919	1920
North America	225,000	103,542	125,413	416,738	760,409	1,021,389
Antilles and Central America	90,165	24,364	36,529	113,737	42,332	19,799
Algeria	341,697	140,284	186,029	387,871	247,137	125,941
Morocco	25,222	28,701	47,184	9,382	29,493	19,900

Passenger Traffic.

Lines	Passengers					
	From France			To France		
	1913	1919	1920	1913	1919	1920
North America	98,877	52,151	79,511	46,057	61,191	29,634
Antilles and Central America	23,039	20,483	23,930	21,049	13,772	19,152
Algeria	100,055	139,385	145,247	94,768	102,475	127,271
Morocco	18,537	19,927	13,801	14,589	19,004	8,315

ANNEX II *(continued)*.

COMPAGNIE GÉNÉRALE TRANSATLANTIQUE *(continued)*.

Average Rate of Freights.

Name of Lines	In July 1914		In December 1918		In January 1921	
	Freight per ton		Freight per ton		Freight per ton	
	Export	Import	Export	Import	Export	Import
North America .	30 fr.	$ 6	67 fr.	$ 76	86 fr.	$ 12
Antilles and Central America .	62 »	shil. 50	87.35	nil	135 »	shil. 150
Algeria	35 »	fr. 30	62.50	fr. 100	112 »	fr. 72
Morocco	40 »	» 40	70 fr.	» 120	130 »	» 105

Coal.

	1913	1919	1920
Total consumption	942,156 tons	422,367 tons 62	555,423 tons 767
English coal ...	535,379 tons	201,527 tons 62	133,192 tons 129
American coal .	370,744 »	220,780 »	421,167 » 593
French coal ...	6,778 »	—	—
German coal...	29,255 »	—	2,064 tons 045
Average price per ton (in the bunker)	31 fr. 20	120 fr. 55	280 fr. 42 (exclusive of cancellations)

Mineral Oil — Nil.

ANNEX II *(continued)*.

COMPAGNIE DES CHARGEURS RÉUNIS.

Statistical Returns of Passengers carried on the Brazil-La Plata Lines in 1919-1920.

	Going.				Returning.			
	1st Cl.	2nd Cl.	3rd. Cl.	Steer-age.	1st Cl.	2nd Cl.	3rd Cl.	Steer-age.
Chargeurs réunis 1919....	797		682	20,968	498		600	2,121
Chargeurs réunis 1920....	1,165		598	6,592	1,777		640	3,486
Cie. Sud Atlant.								
1919.....	1,962		1,280	27,560	2,266		1,240	5,607
1920.....	984	664	758	9,337	752	583	591	1,393
1921.....	1,112	797	821	6,754	762	485	541	2,566

Statistical Returns of Passengers carried on the Indo-China Line.

	Going.					Returning.				
	1st Cl.	2nd Cl.	3rd Cl.	Steer-age.	Deck.	1st Cl.	2nd Cl.	3rd Cl.	Steer-age.	Deck
1919	460	699	31	11,737	1,737	547	432	282	2,439	37
1920	222	372		6,590	107	251	270		661	16
	682	1,071	31	18,327	1,844	798	702	282	3,100	53

ANNEX II *(continued).*

COMPAGNIE DES CHARGEURS RÉUNIS *(continued).*

Statistical Returns of Passengers carried on the West Coast of Africa Line.

	Going.					Returning.				
	1st Cl.	2nd Cl.	3rd Cl.	Steer-age.	Deck.	1st Cl.	2nd Cl.	3rd Cl.	Steer-age.	Deck.
1919	1,357	726	902	3,414	14,276	1,106	568	833	278	6,010
1920	1,126	692	853	712	6,804	807	436	591	2,761	6,715
	2,483	1,418	1,755	4,126	21,080	1,913	1,004	1,424	3,039	12,725

Tonnage of Goods Carried.

Chargeurs réunis.

In 1913 : 1,076,000 cubic metres.
In 1919 : 572,000 ,, (plus 12 voyages made under the general requisitions system).
In 1920 : 900,000 ,, approximately.

Compagnie Sud-Atlantique.

No data with regard to 1913.
In 1919 : 1270,00 cubic metres (plus 18 voyages made under the general requisitions system).
In 1920 : 120,000 ,, approximately.

ANNEX II *(continued)*.

COMPAGNIE DES CHARGEURS REUNIS *(continued)*.

Passages.

Line Braxil-La Plata.

Date.	Port of Embarkation.	Port of Destination.	Chargeurs Réunis.			Sud-Atlantique.		
			1st Class.	2nd Class.	3rd Class.	1st Class.	2nd Class.	3rd Class.
July 1914.	Pauillac.	Buenos Ayres.	625	—	—	715	525	200
» »	»	Rio de Janeiro.	625	—	—	700	525	200
Dec. 1919.	Pauillac.	Buenos Ayres.	1,095	890	415	1,095	890	415
» »	»	Rio de Janeiro.	995	725	415	995	725	415
Jan. 1921.	Bordeaux.	Buenos Ayres.	5,100	—	1,700	5,100	2,800	1,700
» »	»	Rio de Janeiro.	4,550	—	1,700	4,550	2,300	1,700
West Coast of Africa Line.								
July 1914.	Bordeaux.	Dakar.	475	350	200	—	—	—
» »	»	Matadi.	1,025	830	450	—	—	—
Dec. 1918.	Bordeaux.	Dakar.	987	742	420	—	—	—
» »	»	Matadi.	1,631	1,372	896	—	—	—
Jan. 1921.	Bordeaux.	Dakar.	2,295	1,835	1,025	—	—	—
» »	»	Matadi.	4,150	3,325	1,890	—	—	—
Indo-China Line.								
July 1914.	Marseilles.	Saïgon.	1,100	550	—	—	—	—
Dec. 1918.	Marseilles.	Saïgon.	1,716	858	—	—	—	—
Jan. 1921.	Marseilles.	Saïgon.	3,545	1,590	—	—	—	—

ANNEX II *(continued)*.

COMPAGNIE DES CHARGEURS RÉUNIS.

Freights.

Line Brazil-La Plata.

Goods.	Port of Embarkation.	Port of Destination.	Rate of Freights (in francs)		
			In July 1914.	In December 1918.	In January 1921.
Iron	Havre.	Buenos Ayres.	35,— + 10%	25 + 10% + 100%	90 + 10% + 75%
Cement	—	—	30,— + »	34 + » + »	90 + 10%
Furniture	—	—	30,— + »	40 + » + »	90 + 10% + 75%
Cloth, Woollen	—	—	55,— + »	65 + » + »	135 + » + »
Cotton	—	—	45,— + »	55 + » + »	105 + » + »
Silk	—	—	55,— + »	100 + » + »	165 + » + »
Iron	Havre.	Rio Janeiro.	47,50 + 10%	30 + 10% + 100%	90 + 10% + 75%
Cement	—	—	47,50 + »	40 + » + »	100 + 10%
Furniture	—	—	47,50 + »	45 + » + »	90 + 10% + 75%
Cloth, Woollen	—	—	57,50 + »	65 + » + »	90 + » + »
Cotton	—	—	57,50 + »	65 + » + »	90 + » + »
Silk	—	—	57,50 + »	125 + » + »	175 + » + »

West Coast of Africa.

Iron	Bordeaux.	Dakar.	27,— + 10 %	27 + 10 % + 50 %	120
Cement	—	—	27,— + »	27 + » + »	105
Furniture.	—	—	30,— + »	30 + » + »	135
Cloth	—	—	30,— + »	30 + » + »	170
Iron	—	Matadi.	50,— + »	50 + » + »	230
Cement	—	—	50,— + »	50 + » + »	200
Furniture.	—	—	60,— + »	60 + » + »	240
Cloth	—	—	60,— + »	60 + » + »	280

Indo-China Line.

Iron	Marseilles.	Saigon.	45,—	70 + 10 % + 50 %	165 + 10 %
Cement	—	—	23,50	50 + » + »	130 + »
Furniture.	—	—	48,—	85 + » + »	180 + »
Woollen, Cloth . . .	—	—	65,—	85 + » + »	180 + »

ANNEX II *(Continued)*.

COMPAGNIE DES CHARGEURS RÉUNIS *(Continued)*.

Total Consumption and Cost of Bunker Coal.

1913	215,700	tons	=	7,000,000	32 fr.
1919	167,150	»	=	27,800,000	166 »
1920	243,000	»	=	85,000,000	350 »

COMPAGNIE DES MESSAGERIES MARITIMES.

Data furnished for the information of the General Conference on Communications and Transit at Barcelona by the Ministry for Public Works, Department for the Mercantile Marine, Ports and Fisheries, at the request of the Under-Secretary of State, under date of January 24th, 1920.

1. **Passenger Traffic**

1913	205,995
1919	79,196
1920	140,000

2. **Tonnage of Goods in tons of 1,000 kgs.**

1913	1,018,092
1919	207,140
1920	433,260

3. Cost of Passengers' Fares starting from Marseilles.

From Marseilles to	In July 1914				In December 1915				In January 1921			
	1st Cl.	2nd Cl.	3rd Cl.	4th Cl.	1st Cl.	2nd Cl.	3rd Cl.	4th Cl.	1st Cl.	2nd Cl.	3rd Cl.	4th Cl.
				without Board				without Board				without Board
Port Said	375	250	180	95	585	390	233	140	1,575	1,060	630	430
Constantinople	285	185	110	50	—	—	—	—	1,155	715	440	200
Tamatave	1,295	910	480	865	2,340	1,560	780	455	3,860	2,575	1,420	835
Saigon	1,625	1,100	550	287	2,535	1,715	860	450	5,020	3,545	1,665	800
Shanghai	1,680	1,155	605	298	2,680	1,800	1,040	450	5,450	3,960	1,925	845

4. Freight of Goods per ton of 1,000 kilogrammes or per cubic metre of the ship's capacity.

	July 1914	Dec. 1918	Jan. 1921
	Francs	Francs	Francs
France Madagascar (Tamatave)	66	148,50	198
— Shanghai	93,50	148,50	214,50
— Saigon	11	148,50	198
— Egypt	66	115,50	159,50
Madagascar France	50	200	250
Shanghai —	45	500	250
Saigon —	40	400	150
Egypt —	40	160 per Allied cargo - boats and Allied mixed steamers. 240 frs. per neutral vessel and steamer.	7 Egyptian £

Annex III.

FLUCTUATIONS IN THE RATE OF FREIGHTS FROM 1914 TO 1920.

1. Pre-war Period (first six months of 1914).

Origin	Destination	Rate of Freights.
England	Black Sea	7 -/
Hamburg	—	7 -/
La Plata	London	8 - 9-/
Bombay	Great Britain	15 -/ to 17-/
Australia	—	25 -/
Saigon	Marseilles	23 -/
Southern Ports	French Channel Ports.	4 -/
—	French Ocean	4 to 5 fr.
Bordeaux	Cardiff	5 -/
East Coast	Bordeaux	5 -/
Newcastle	Singapore	12 -/
Cuba	Marseilles	13 -/
Rotterdam	Algiers-Marseilles	7 to 8 fr.
United States	France	10 - to 11 -/

The average rate of freights varied little during the first months of 1914. The fluctuations observed are not very marked and there is little difference between the averages for the first six months.

2. Fluctuations in the Rate of Freights at the time of the Armistice.

(Last quarter of 1918.)

Origin.	Destination.	Rate of Freights.	Observations.
	October.		
Bordeaux	Bristol	17-/	
Bayonne	Bristol	20-/	
Southern Ports	Havre	45 to 50-/	Neutral tonnage. Includ. war risks (Allied tonnage).
—	Rouen		
—	Brest		
—	Bordeaux	69-/	
—	Brest	23-/	
—	Saint-Malo	17-/	
	November.		
Bristol	Bordeaux	17-/	
—	Bayonne	20-/	
Southern Ports	Rouen	45 to 50-/	Neutral tonnage
—	Caen		
—	Saint-Malo		
—	Brest		
East Coast	French Channel Ports	80-/	End of November
Mersey	Bordeaux	67-/	
	December.		
Bordeaux	Bristol	16-/	
Bayonne	—	19-/	
Southern Ports	Rouen	35- to 40-/	Neutral tonnage
—	Le Havre		
—	Saint-Malo		
—	Brest	15- to 20-/	Allied tonnage
—	Saint-Malo		
—	Honfleur		
East Coast	Rouen	4-/	19th December

There is little difference in the average rate of freights between October and November. In December they show a downward tendency. There is a marked difference between the rates charged for Allied and for neutral tonnage.

According to the *Daily Freight*, the rate of freights for the Far East, Australia and the United States, during the same period was as follows:—

Origin.	Destination.	Rate of Freights.	Observations.
Australia	Great Britain	150-/	Nov.-December.
Saigon	Marseilles	500-/	—
Bombay	Great Britain	260-/	—
United States	Great Britain	56-/	—

3. Fluctuations in the Rate of Freights at the End of 1920.

Tyne	Rouen	25-/	October
—	—	12-/	December
Cardiff	Bordeaux	27-/	November
—	—	15- ot 17-/	December
—	—	7- to 8-/	January 1st
—	Marseilles	25- to 30-/	November
—	—	15- to 17-/	End of December
—	Lisbon	35- to 40-/	October
—		25- to 30-/	November
—		12- to 17-/	December
Saigon	Antwerp	112-/	October
Bombay	Great Britain	62-/	November
Saigon	Marseilles	115-/	October
	Danzig	125-/	November
Karachi	Marseilles	77,6-/	November
—	Great Britain	42,6-/	December
—		30-/	January
Rosario	Continent	95-/	October
Buenos-Ayres	—	90-/	October
Rosario	—	70-/	November
—	—	45- to 50-/	December
Tyne	Buenos Ayres	15-/	January
United States	French Atlantic	14 $	October
—	—	9 $ 50	November
—	—	8 $ 50	December
Australia	Great Britain	150-/	October
—	—	135-/	November
—	—	80-/	December

In view of the economic crisis (the decrease in demand), it is impossible to determine averages giving an exact idea of the situation.

The preceding figures may, however, serve as an indication of the actual state of affairs.

We give below a comparative table of the freights obtaining in 1914, 1918 and 1920 on the main routes. These figures must be considered merely as general indications and not as accurate averages, since the state of the market in 1918, and particularly at the end of 1920, made it impossible to establish accurate averages in a sufficient number of cases.

Origin.	Destination.	Rate of Freights.			Observations.
		1914	1918	1920	
Australia	Great Britain	25-/	150-/	80-/	December
Saigon	Marseilles	23-/	500-/	115-/	October
Bombay	Great Britain	5-/	50-/	8-/	December
Bordeaux	Cardiff	15 to 17-/	260-/	62-/	November
United States	France	10 to 11-/	»	$ 8	December
United States	Great Britain		56-/		

4. Fluctuations in the Rates for chartering Vessels on Time Charter.

The following are the averages of the rates for chartering vessels on time charter for the three periods under consideration :—

Year 1914	4/-58
Last Quarter 1918.	49/-
Last Quarter 1920.	18/-4

The averages for the end of 1920 are evidence of the serious crisis in freights, the consequences of which have already been shown in the figures given for chartering.

The average for the last three months of 1920 is 18/-4, while the average for December alone is 11/-3.

5. Cost Price of Bunker Coal.

The following table shows the cost price per ton paid by French shipowners for bunker coal in the ports of Havre, Bordeaux and Marseilles in 1914, in the last quarter of 1918 and at the end of 1920.

Port of Importation.	1914		1918	1920
	Large.	Pit-mouth	Large or Pit-mouth.	Large or Pit-mouth.
Le Havre	34,50	29,50	135,00	300,00
Bordeaux	34,00	30,25	166,50	270,00
Marseilles	35,00		232,50	436,50

Observations.

1. In the figures for 1918 and 1920 we have classed the two categories of coal—large and pit-mouth—together. At that time, when the shortage of fuel was acute, shipowners bought any coal which was obtainable in the market.

2. The prices for 1918 are based on those demanded by the Shipping Department ; under the requisitions system, this department alone had the right to supply the requisitioned ships with coal.

3. It must be noted that the figures for 1920 represent the cost price paid by the shipowners, cancellations of policies by which the owners had benefited since August 1st being included in the reckoning.

Annex IV

LIST OF PRICES QUOTED ON THE PARIS BOURSE

Name of Security	Rate on January 1917	Rate in 1919		Rate in 1920	
		Lower	Higher	Lower	Higher
Sea and River Transport:					
Affréteurs réunis	728	—	—	625	1,130
Auxiliaire de Navigation	500	—	—	490	1,450
Bateaux parisiens	315	200	269	208	288
Cargos français	222	—	—	320	1,150
Chargeurs d'Extrême Orient	436	—	—	380	970
Chargeurs d'Extrême Orient (parts)	74	—	—	66	250
Chargeurs réunis	890	1,201	2,150	888	2,700
Chargeurs réunis (Part de fondateur)	1,490	1,060	3,450	1,405	4,095
Chargeurs français (Plisson & Cie.)	1,410	1,825	4,800	1,395	6,500
Compagnie générale de navigation	545	511	875	500	1,075
Cie. havraise pénins. de navigation à vapeur .	3,820	3,100	4,500	3,820	6,100
Cie. générale transatl. (Act. ord.)	294	320	578	245	620
Cie. générale transatl. (Act. de prior.)	297	310	550	250	588
Est Asiatique français ..	240	248	325	230	428
Est Asiatique danois ...	3,220	2,495	4,225	2,600	5,800
Maritime française	145	362	665	156	940
(nº 40.001 à 80.000) ..	60.25	—	—	53	209
Maritime et Commerciale de France	306	—	—	220	2,800
Maritime et Com. du Pacifique, Se A	—	—	—	—	—
Maritime et Com. du Pacifique (nº 6001 à 24,000)	—	—	—	—	—
Maritime et Com. du Pacifique (nº 24,001 à 48,888, Se B)	204	—	—	266	1,195

ANNEX IV (*Continued*).

LIST OF PRICES QUOTED ON THE PARIS BOURSE (*Continued*).

Name of Security	Rate on January 1917	Rate in 1919		Rate in 1920	
		Lower	Higher	Lower	Higher
Messageries fluviales du Congo	292	200	261	206	349
Messageries fluviales (Part)	315	300	460	295	560
Messageries fluviales (Cinquième)	62	51	94	50	116
Messageries maritimes (act. ord.)	272	295	695	248	718
Messageries maritimes (act. de prior.)	279	290	659	256	658
Messageries fluviales de Cochinchine	340	291	361	320	475
Navale de l'Ouest	920	—	—	975	2,700
Navigation de l'Afrique du Nord	357	—	—	250	600
Omnium maritime français	265	—	—	55	547.50
Pêcheries à vapeur (Soc. fr. de)	122	—	—	100	342
Sud-Atlantique	—	—	—	480	735
— (Parts)	70	—	—	57	200
Touage et de remorquage (Sté. gle. de)	161	131	214.50	125	255
Touage et de remorquage (Sté. gle. de) (Part de fondateur)	340	222	540	300	600
Transocéanique (Soc. de navig.)	525	—	—	525	565
Transports maritimes à vapeur (Sté. gle.)	1,160	1,350	2,800	990	3,270
Vapeurs français	140	191	300	120	310
Voiliers français (titre chamois clair jouissance)	430	395	450	430	—

According to the *Illustration Economique et Financière*.
Quarterly list of quotations 1921, first quarter.

IV.

MOTOR TRANSPORT.

Statement on the present situation of Motor Transport compared with the pre-war situation.

In 1913, the number of touring cars in France, according to the statistics of direct taxation, was 90,959, of which 69,032 were cars of more than two seats and 21,927 of one or two seats.

As lorries and light lorries in 1913 were not subject to any tax, they did not figure in the returns of the Revenue Department, but the number of vehicles in this category was ascertained in 1914—when they were all requisitioned—to be about 8,000.

One can therefore estimate that there were not more than 100,000 motor vehicles of all categories in France in 1914.

The Census taken at the beginning of 1920 by the Ministry of War for purposes of requisition showed :—

Vehicles of the 1st category	lorries, light lorries	41,320
» » » 2nd »	touring cars	103,155
	motor cycles	5,267

But the number of lorries and light lorries belonging to private individuals has considerably increased during 1920, not only through the disposal of war stocks but also by the construction of new vehicles.

The War Requisition Service estimates at about 70,000 at least the present number of private vehicles of the first category in France.

To this figure must be added 14,000 lorries belonging to the Army, and 9,000 at the disposition of the Ministry of the Liberated Regions.

We have, therefore, a total of 70,000, plus 14,000, plus 9,000—*i.e.* 93,000—lorries and light lorries at present on the French roads. The number of vehicles in this category is thus more than ten times the pre-war figure.

Touring cars have not increased in so great a proportion. The Ministry of War estimates their present number at about 110,000, an increase of 19,000 on the figure of 1913, ~~that is to say~~ about 20 %.

To sum up, the number of mechanically propelled vehicles existing in France has risen approximately from 100,000 in 1913 and 1914, to 206,000 in 1921 (of which five to six thousand are motor cycles).

It must not be assumed from these figures that the development of transport has merely doubled since 1914. The average daily mileage of a motor vehicle is certainly five or six times greater than that of a horse

drawn vehicle, and the average tonnage carried per vehicle is also considerably greater.

The figures for the last six months in respect of circulation on the national roads shows—according to the first information, not absolutely precise, which it has been possible to obtain—that the increases in motor traffic vary, according to departments, from 100 to 850 % as compared with the census of 1913, and that—as might have been expected—the increases are due for the most part to the motor lorries, the number of which in 1913 was very small.

There is, it is true, a pretty general diminution in horse-drawn traffic. This reduction, however, does not seem to amount to more than from 12 % to 15 %, and may be considered negligible—from the point of view of the construction and upkeep of roads—in comparison with the increase in motor traffic.

The essential and permanent cause of this increase is the advantage of the automobile from the point of view of rapidity and mobility. But there are also other reasons, due to present conditions : the experience of and the taste for this mode of a t ansit acquired during the war by a great number of combatants, the sale of the stocks of the Allied armies the urgent demand caused by the resumption of the economic life of the country, which has been accentuated by the crisis in rail transport.

These different causes have stimulated the organization of public motor transport services, which before the war were mainly undertaken in regions difficult of access. To-day, the need of such services has become more imperious, because the construction of railways for local service has become extremely expensive. As a result of laws passed before the war and amended during the war, the State has been able by a system of pecuniary encouragement to help the departments and communes to develop this system of public transport.

At the present moment, without counting purely departmental systems, the State distributes annually more than 3,500,000 francs in subsidies to 91 enterprises, — working 185 routes, which have a total length of about 8,000 kilometres, and extend over 41 departments — for the daily transport, in both directions, of travellers, luggage, goods and merchandise. The means of still further developing this method of transport by a more elastic system of subsidies is under consideration. The credit figuring in the Budget in 1921 for State subsidies is 5,000,000 francs.

French Colonies.

RAILWAYS.

General Results of the Working of the System in 1913 and 1918.

Lines:

Haiphong to Yunnan Sen.
Hanoi to Namgnam.
Hanoï to Vinh Benthui.
Saigon to Mytho.
Saigon to Khanhoa.
Tourane to Dongha.
Ivory Coast.
Dahomey.
East Dahomey.
Dakar St. Louis.
Kagos to Niger.
Thies to Kayes.
Kayes to Ambidedi.
Guinea.
Tamatave to Antananarivo.
Reunion.
Djibouti to Addis-Abeba.
New Caledonia.

Years.	Average length of line worked.	Total Receipts.	Total expenses of working.	Net profit on working.	Proportion of expenses to total receipts.
1913....	5,276	34,343,970	23,235,051	11,108,919	70,5
1918....	5,972	49,757,562[1]	36,750,654	13,006,908	73,8
Lines from Karikal to Peralam Pondicherry to the River Gingy.					
1913....	36	367,489	231,701	135,788	63
1918....	—	—	—	—	—

[1] Not including 203,715 for East Dahomey, in respect of which the expenses and profits have not been stated.

Railways. — The following table gives the position of Colonial railways from January 1st, 1921 :—

Name of Colony.	Lines.		Totals.	Remarks.
	actually working.	under construction.		
French West Africa	2,646 k.	201 k.	2,847 k.	
Madagascar	488	131	619	Not including 464 k. in Chinese territory : Line Haiphong-Yunnan Sen.
Indo-China	1,660	108	1,768	
Reunion	126	—	126	
Railway from Djibouti to Addis-Abeba	90	—	90	The line continues through Abyssinian territory for 696 k.
New Caledonia	29	—	29	
French India	30	—	30	
Totals...	5,069 k.	440 k.	5,509 k.	

Generally speaking, the lines and bridges, etc., are in a fairly good state of repair, although during the past few years repairs have had to some extent to be left over.

Plans for the construction of numerous railways to complete the systems in Indo-China, Madagascar, French West and Equatorial Africa, etc., are at present under consideration.

The rolling stock, which has not been in a sufficiently good condition of repair for several years, requires much renewal and improvement in various important respects. To cope with the traffic, an increase in the amount of the rolling stock is also essential on several systems.

FRENCH COLONIAL RAILWAYS.

General Fares and Rates for 1913 and 1920 of the Principal Systems.

1. *Passenger Traffic.*

Classes	Indo-China		West Africa		Madagascar	
	1913	1920	1913	1920	1913	1920
1st class	(1) 0,175	0,175	from 0,10 to 0,30	0,49	0,20	0,20
2nd —	(1) 0,0875	0,0875	from 0,06 to 0,20	0,315	0,10	0,10
3rd —	(1) 0,05	0,05	from 0,03 to 0,12	0,14	—	—
4th —	(1) 0,0175	0,0175	0,04	0,084	0,04 natives	0,06

Classes	Djibouti to Addis Abeba		Railways in Reunion		Dakar to St. Louis	
	1913	1920	1913	1920	1913	1920
1st class	0,60	1,20	0,10	0,14	0,12	0,35
2nd —	0,20	0,40	0,06	0,084	0,08	0,226
3rd —	—	—	—	—	0,055	0,10
4th —	0,05 natives	0,10	—	—	—	—

2. *Goods Trains.*

The general rates for goods trains in force on the different railway systems in the Colonies vary very considerably. Some of them are based on a sliding scale, others vary for the up and the down journey. The classification of goods also varies according to different colonies. Special rates have been drawn up to apply to the principal classes of goods carried by rail. Since the war, the general rates for goods trains have been increased on certain systems in proportions of from 40 to 100 %.

[1] Fares reckoned at the rate of 2.50 to the piastre.

II.

WATERWAYS.

French West Africa.—The question of the stabilization and improvement of the mouth of the Senegal below St. Louis has been the subject of considerable study. The latest solution proposed would include two undertakings : the first with a view to the fixing of the mouth of the river ; the second with a view to the improvement of the bar thus fixed.

Furthermore, the question of the control of the River Senegal has to be solved, with a view to increasing the period during which this river is navigable.

French Equatorial Africa.—The numerous waterways of French Equatorial Africa can, for the most part, be made navigable by means of comparatively unimportant works.

Cameroons.—In order to allow of the exploitation of the vast forests, rich in rubber, traversed by the Nyong, dredgings, levelling of the river-bed, and a system of buoying on the sand-banks should be undertaken.

Sufficient material should be supplied to the local services to enable them to ensure, by means of their own resources, the navigation of the river with all the continuity and safety which are desirable.

Indo-China.—The inundations of the Red River have been, from time immemorial, the scourge of Tonkin. The consolidation of the dykes has involved considerable works, and these are as necessary as ever in view of the alluvial deposits which continually block the bed of the river.

Madagascar.—The Pangalanes canal, which joins up the lagoons of the east coast, is at present navigable for 300 km. This waterway must be improved and completed.

III.

PORTS.

French West Africa.

The Port of Dakar.—The extension of the port of Dakar has become an urgent necessity on account of the considerable development of traffic of this port since 1910. The present installations and the arrangements for loading and unloading are insufficient. Furthermore, the pea-nut trade is shifting its centre of activities and the port of Dakar is tending more and more to become this centre.

Platforms and quays should accordingly be made. Owing to the development of coaling operations, and the necessity of creating an important mazout depot, the extension of the anchorage grounds and the erection of new installations are essential.

Port of Kaolak.—Port connected with Thiès-Kayes by a branch line of 22 kilometres. The development of pea-nut cultivation in this district, of which Kaolak is the centre, requires the creation of new installation and the improvement of the entrance to the Salun river.

Ivory Coast.—As a result of the development of the forests, it is necessary to construct at Grand Basaam new export storehouses, a timber storehouse, a swing bridge and all the plant necessary to secure the maximum utilisation of the wharf. A second wharf should be installed at Vridi; connection with Abidjan would be made by a ferry boat.

Togo.—The Lomé wharf was made in 1904. It is not in very good condition at present as a result of the damage caused by a tidal wave in 1911.

Dahomey.—The Cotonu wharf is in need of considerable repairs and additions.

Guinea.—The equipment of the port of Conakry is no longer sufficient for its present needs. Dredging is required in order to permit the approach of ships of 7 m. draught, and the port is also in need of plant indispensable for the handling of goods.

French Equatorial Africa.—The trade in Gabon timber tends to give the port of Gentil an ever-increasing importance. Though it may not be urgent at the moment to improve the conditions in respect of sea-going traffic, steps should, however, be taken to provide this port with better facilities for river navigation and for the transport of timber by barge. Lighthouses, signalling installations, lights and beacons, a coal quay, platforms and a repairing yard for ship hulls, etc., are therefore necessary.

The agricultural development of the Congo has given new importance to the river port of Brazzaville. In the first place the necessary constructions must be made to prevent silting, and a platform above high-water-level and moles for barging operations must be provided.

Cameroons.—The port of Duala is the sea-port which is the terminus both of existing and projected railway lines. The present equipment should be completed by the following operations:—

(*a*) Improvement and deepening of the channel so as to permit ships with a draft of 8 m. to enter Duala at all times.

(*b*) Construction of quays.

(*c*) Installation of signalling apparatus, lights, semaphores, buoys, etc.

(*d*) Reconstitution and improvement of the present floating material of the port.

Indo-China.—The present equipment of the ports of Saigon, Cholon and Haiphong should be completed so as to comply with the development of the countries whose products they handle.

Turan is the port of Central Annam and will later on be the port of Laos; its development is essential.

Madagascar.—When the railways now projected are constructed, the present ports of the colony will have to cope with important commercial traffic. Provision must at once be made for the fitting up of these ports, notably Tamatave and Mejunga, and the improvement of their plant.

Reunion.—The Port of Pointe des Galets does not possess the equipment its traffic demands. Its present plant must also be adapted to the requirements of modern boats. Consideration must also be taken of the fact that labour is becoming ever scarcer and that it will be essential to have recourse to the handling of goods by mechanical methods, necessitating important installations.

St. Pierre and Miquelon.—The development of steam-boat fisheries necessitates the carrying out in this port of important enlargements and improvements, the establishment of new light-houses and safety installations (sirens, etc.).

Guiana.—The silt has recently been removed from the port of Cayenne. Immediate operations should be undertaken to prevent future silting in order to maintain free access to the port.

Numea.—The traffic of the port of Numea is continually increasing and the landing facilities are accordingly insufficient. The quay should be lengthened and dredging operations should be undertaken in order to create one or two landing stages in deep water for ships with a draught of 8 m.

French Somaliland.—The port of Djibouti is, by reason of its position, the port of call for ships proceeding from the Suez Canal to the Far East, Australasia, or the East Coast of Africa. It is also the natural outlet for Abyssinia. For these reasons it should be provided with the equipment which at present it lacks, including the creation of basins and quays, embankments and the installation of buoys, moorings, etc.

Martinique.—The port of Port-de-France, though admirably placed, is very badly equipped. In order to assure its future development, important works must be undertaken, especially the construction of embankments and quays, and the improvement of the plant.

Oceania.—The equipment of the port of Papeete is in a condition which requires immediate attention. The landing stages and haulage slips must be repaired, the channel must be deepened, and a signalling system (lights and beacons, etc.) must be installed.

Guadeloupe.—The port of Pitre-Point has only very elementary equipment and plant; large ships are unable to approach it and manœuvre with rapidity. Quays and landing stages should be made, the entrances must be deepened and put in order, and beacons, buoys, etc., installed.

French India.—To lessen the inferiority of the ports of Karikal and Pondicherry as compared with the neighbouring ports of British India, the equipment of both ports must be improved by landing stages, quays, storehouses, plant, lights, signals, etc.

IV.

MOTOR TRANSPORT.

Madagascar.—The Motor Transport Service was working in 1913 on the following routes:—

Antananarivo to Ambositra 268 km.
» » Niarinarivo 99 km.
» » Maevatanana (Western road) 346 km.

In 1921, the following lines were being worked:—

Mananjary	Ambalavao	(Southern road)	88 km.
Antananarivo	Mananjary	» »	137 »
»	Marinarivo	» »	99 »
»	Maevatanana	(Western road)	346 »

Annual receipts:

1913	1914	1915	1916	1917	1918
273,080	272,256	291,739	430,084	578,327	500,285

Distances covered.

252,750 k.	273,920 k.	284,199 k.	404,551 k.	467,469 k.	500,411 k.

The Motor Transport Service, which has Jananarive as its centre, is completed by a subsidiary service, of which the head quarters are at Diego Suarez, between Antsirane and Cap d'Ambre (34 km.) and between Antsirane and Ambilobe (route des Placers) (138 km.).

The length of road covered by motor traffic was therefore :—

In 1913.	713 km.
In 1921.	1,242 km.

Upper Senegal and the Niger country.—A Motor Transport Service was established by decrees of the Lieutenant Governor, dated March 21st ned October 22nd, 1917, with a view to joining up Cotiari, the present, tarminus of the railway from Thies to Kayes with Ambidedi, and then with Kayes. The distance from Cotiari to Kayes is 264 km. The following fares have been adopted :—

First-class passengers, 250 fr., with 60 kilo. of luggage allowed free.
2nd-class passengers, standing or on goods trains, 75 fr., with 5 kilo. of luggage allowed free.

Dahomey.—In 1912 an automobile service was established on the Niger route between Savé, the present terminus of the railway, and the river.

This route has been open since October 1912, and although throughout its length of 483 km. its width varies considerably, vehicular traffic is possible throughout.

The receipts from the automobile service come from the postal service, the carrying of passengers, of luggage and of goods. The annual deficit of working is on an average 40,000 fr. ; but the political and economic results achieved by the service more than compensate for this small loss. Among other advantages, one may note that an unbroken journey — without portage — is now possible throughout the whole length of the route.

Since 1914, motor traffic has considerably increased in almost all French colonies, especially in the West Indies, by reason of the absence of railways connecting the factories with the ports.

END OF VOLUME I.

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GENERAL TRANSPORT SITUATION

IN 1921

LEAGUE OF NATIONS

GENERAL TRANSPORT SITUATION

IN 1921

Statements submitted by the States which took part in the First General Conference on Communications and Transit, held in March-April 1921

WITH AN INTRODUCTION BY

PROFESSOR TAJANI
Engineer, Professor of the Royal Polytechnic College, Milan.

VOL. II

GENEVA 1922

GERMANY.

I

RAILWAYS.

Introduction.

A comparison between transport in the German Empire before and after the war shows that the situation in Germany has developed since the war in an entirely different way from that in other countries. As a result of the cession of large areas in the west and in the east, the railway system has been reduced by 4,819 kms. By the terms of the Armistice, Germany was compelled to hand over to her enemies 5,000 locomotives, 140,000 goods wagons and 10,000 passenger carriages. As in all countries which were affected by the war, traffic has suffered from the increased use of the permanent way, buildings and materials. The whole transport system has felt the effect of the sudden introduction of the eight-hour day, the resulting increase of employees (whose capacity and willingness to work was diminished by the privations of war), and the marked increase in salaries and wages, and also in the cost of all materials. The depreciation in the value of money has had considerable influence on the financial situation; the increased expenditure could not be entirely off-set by raising the passenger and goods rates. Another consideration, which affects Germany, was the taking over of the State railways by the Imperial Government on April 1st, 1920; this necessitated a vast amount of re-organisation, which also had its effect on traffic. Complete returns regarding the State-operation of the lines are not yet available for the administrative year beginning on April 1st, 1920, so that, in most cases, the only positive data which can be used for purposes of comparison are those of the year 1919/20. In certain cases reliable data regarding the present situation and possible future developments are not yet obtainable.

It follows from all these considerations that the greatest caution should be observed in drawing conclusions regarding the development

of traffic since the war, and regarding the effect of the war upon traffic, as shown in the following figures. Only after the lapse of a certain time, when matters have settled down, and the situation has become to some extent stabilised, will it be possible to judge what effects the world-war has had upon the various forms of transport—railways, waterways, air navigation and motor transport.

Railway Track and Rolling-stock.

(a) *Length of Track of the German State and Private Raylways.*

State Railways :	1 *April* 1914	1 *April* 1920
Normal gauge	57,821.84 kms.	52,487.83 kms.
Narrow gauge	1,074.38 kms.	1,029.54 kms.
Total	58,896.22 kms.	53,517.37 kms.
Private Railways :		
Normal gauge	3,535.92 kms.	3,569.21 kms.
Narrow gauge	1,143.34 kms.	954.43 kms.
Total	4,679.26 kms.	4,523.64 kms.

The narrow-gauge railways have, as a rule, a gauge of about 1 metre or 0.750 m., and in a few cases, of 0.785 m.

The reduction of the railway system by 5,378.85 kms. is explained by the following figures :

Reduction shown in the following table	4,818.61 kms.	Increase due to new construction	1,223.44 kms.
Reduction owing to the loss of Alsace-Lorraine	2,030.97 kms.	Not yet handed over to Denmark on April 1	247.29 kms.
Minus	6,849.58 kms.	Plus	1,470.73 kms.

Details of the lengths of track handed over under the Peace Treaty are given in the following table :

Ceded to	Length of Track			Remarks.
	Main Line	Branch Line	Total	
	kilometres			
Memel District	91.22	45.67	136.89	
Czecho-Slovakia.....		31.23	31.23	
Belgium	33.50	119.67	153.17	
Denmark	69.98	177.31	247.29	
Poland		32.25	32.25	Formerly Adm. Dist. of Breslau
	551.07	810.62	1361.69	,, Bromberg
	502.28	858.40	1360.68	,, Danzig
		13.32	13.32	,, Königsberg
		26.72	26.72	,, Kattowitz
	725.50	584.55	1310.05	,, Posen
Free City of Danzig	60.42	84.90	145.32	
Total....	2033.97	2784.64	4818.61	

(b) *Material and Repair.*

The situation as regards material before the war and at the present date will be seen from the following summary, which contains three tables, showing: total number of wagons, number in need of repair and number fit for use, in the period before the war and on October 1st, 1920.

Table 1 shows that the number of locomotives has increased by 830 since the beginning of the war, but that, on the other hand, the number of passenger carriages and luggage vans has been reduced by some 22,600 and goods by wagons 124,200. Table 3, which makes allowance for wagons in need of repair, gives a less favourable picture. According to this table, there has been a reduction in the number of wagons fit for use, as compared with the pre-war period of:

Locomotives	5,360
Passenger carriages and luggage vans	26,600
Goods wagons	176,700

Summary of the total Rolling-stock and Rolling-stock in need of Repair.

(a) *Total Rolling-stock.*

	Before the war	On Oct. 1, 1920
Locomotives	29,170	30,000
Passengers carriages and luggage vans	82,600	60,000
Goods wagons	671,000	546,800

(b) *Rolling-stock in need of Repair.*

	Before the war	On Oct. 1, 1920
Locomotives	5,125	11,315
Passenger carriages and luggages vans	5,000	9,000
Goods wagons	22,500	75,000

(c) *Number of Wagons fit for Use.*

	Before the war	On Oct. 1, 1920
Locomotives	24,045	18,685
Passenger carriages and luggage vans	77,600	51,000
Goods wagons	648,500	471,800

The situation outlined above will become even less favourable when the surrender of rolling stock which has still to be handed over, under the Peace Treaty, to Poland, the Free City of Danzig, Memel, Czecho-Slovakia and Belgium, has been completed.

The share of the German rolling stock which has to be allotted by Germany to the ceded territories in accordance with Article 371, paragraph 3, of the Treaty of Peace, has been fixed as follows by the Committees of experts appointed by the Entente.

To be delivered to	Loco-motives	Passenger carriages	Luggage vans	Goods wagons
Belgium (Districts of Eupen and Malmédy)	73	66	40	746
Czecho-Slovakia (Hultschiner Land) .	8	25	6	77
Memel	20	29	12	346
Poland	2,360	3,670	465	49,725
Free City of Danzig .	116	172	35	2,073
Total	2,577	3,982	548	52,967

The negotiations with regard to the formal handing over (or exchange) of wagons are still for the most part pending.

The unfavourable situation as regards rolling-stock is to be chiefly ascribed to the following causes:

The Effect of the War.

The wide extent of the theatre of war involved a very high strain on the rolling stock. The wagons were so continuously in use that there was scarcely time for the most indispensable repairs. As a result of the blockade of Germany, there was a dearth of necessary raw materials, so that substitutes of inferior quality had to the employed for boilers, ironies, metal chairs and insulators. The use of these substitutes resulted in an increase in the repairs needed. The inferior quality of the fuel which had to be used during the war—such as coal and oil—also had an injurious effect on the rolling stock. An additional difficulty was that fresh personnel, who were lacking in the necessary knowledge and experience, had to be engaged to replace the large numbers of railway employees called up for military service.

Rolling-Stock lost as a result of the War.

All the rolling stock which was handed over to the Military Administration was transferred, as occasion required, from one theatre of war to another. No records were kept of the distances covered by the locomotives and wagons. Further, owing to the precipitate character of the retreat, it was not possible to ascertain what wagons had been captured by the enemy, abandoned during the evacuation of the occupied districts in the west, east, south and south-east, or left in the territory of our Allies. The available returns show an estimated loss of :

Locomotives	1,405
Passenger carriages	4,190
Luggage vans	696
Goods wagons	66,017

Surrender of Rolling Stock in pursuance of the terms of the Armistice and of the Peace Treaty.

The surrender of rolling stock which had to be handed over in pursuance of the terms of the Armistice and the Peace Treaty had a disastrous effect on the situation as regards rolling-stock. Under the Armistice alone 5,000 locomotives and 150,000 wagons had to be handed over. Compliance with this demand, which was in itself a very large one, was rendered even more difficult by the extremely exacting conditions laid down by the Allies as regards the capacity and condition of the rolling-stock to be surrendered. The percentage of locomotives in running order surrendered was relatively very high. The high standard insisted on as regards the condition of the surrendered rolling-stock made it necessary for the great majority of such stocks to be thoroughly overhauled and repaired in our workshops. The needs of our own railway service had consequently to be neglected.

Decrease in industrial Production.

In consequence of the enormous surrender of rolling-stock, numerous orders had to be given for new material. The industries concerned were, however, unable to cope fully with these orders owing to their diminished capacity for output in comparison with peace conditions.

Reduced Output of the Workers.

The reduced output of the workers had a considerable effect on the transport situation. This reduced output is to be ascribed to the introduction of the eight-hour day, the abolition of piece-work, the engagement of large numbers of unskilled workmen, and the lack of

superintendents and foremen, whose number could not be increased in proportion to the increase in workmen. There was also a temporary reduction of efficiency owing to political unrest and frequent strikes. Productive capacity was, moreover, seriously affected by long under-feeding during and after the war.

This reduced output was especially noticeable in the workshops. In spite of considerable increase of personnel, the output became progressively smaller during 1919. As a result of drastic measures, such as the closing of workshops, the dismissal of idle men, or of supernumerary personnel and the partial re-introduction of piece work, a certain improvement was achieved. The introduction of the eight-hour day has resulted in a 21 or 31 % decrease in output.

Insufficiency and Bad Quality of Coal.

As a result of the deliveries of coal to the Entente, the coal supply of the German railways has constantly become more scanty and worse in quality.

Experience shows that in order to keep up a normal service a supply of 21 days' coal is essential. The stocks available were :

on August 1st, 1914	Supplies	1or	95	days.
on October 1st, 1919	»	»	9.5	»
on November 20th, 1919	»	»	5.4	»

Of these supplies about one-third, as a rule, consisted of coke which can scarcely be regarded as usable.

When stocks are so low, it is only possible to keep up the supply if regular services are maintained and the necessary kinds of coal are received. Neither of these conditions is, as a rule, fulfilled.

The use of inferior coal is even more injurious because of its ruinous effects upon locomotives and the consequent interruption of traffic. Moreover, the bad quality of the coal, of course, necessitates a larger consumption.

Coal consumption amounted in October 1914 to 14.4 tons, and in 1919 to 21.1 tons, for every 1,000 locomotive-kilometres. Since that time it has risen to 50 tons.

The total consumption of fuel may be summarised as follows :

Total Consumption of Fuel.

(Locomotive coal, other coal, coke, briquettes, lignite.)

1913 : 16,577,000 tons, costing 219 million marks, *i. e.*, on an average, 1 ton = 13.20 marks, without cost of freight.

1919 : 16,034,000 tons, costing 1.626.854.000 marks, *i. e.*, on an average, 1 ton = 101.45 marks, without cost of freight.

1920 : 15,882,000 tons, costing 4,041,969,000 marks, *i. e.*, on an average, 1 ton = 254.50 marks, without cost of freight.

The actual consumption of fuel in the year was certainly somewhat less than in 1913, but *relatively* — in other words, if the reduction in running of trains and in the extent of the railway system and the amount of the traffic are taken into account — there has been a considerable increase. Of the quantities of fuel consumed, about 94 % was locomotive fuel coal, (coke and briquettes) ; the remainder consisted of other varieties of coal including lignite. About 90 % of the locomotive fuel was used for running locomotives ; the remainder for various heating purposes.

The fuel was obtained from the following districts :

About	71 %	from	the Ruhr Basin.
»	21 %	»	Upper Silesia.
»	3 %	»	Lower Silesia.
»	3 %	»	Saxony.
»	2 %	»	other districts.

The present prices of the various sorts of locomotive fuel are as follows :

Coal	from the Ruhr . . .	247-266.50	marks	at	the	pit-head
Briquettes	» » » . . .	365.10	»	»	»	»
Coke	» » » . . .	331.20	»	»	»	»
Coal from	Upper Silesia	205.10	»	»	»	»
» »	Lower Silesia	282.20	»	»	»	»

The Main International Lines.

1914. — 1. Paris—Berlin—Wirballen—Petrograd.
2. Paris—Berlin—Moscow.
3. Frankfort (Main)—Halle—Breslau—Warsaw.
4. Berlin / Hambourg — Flushing / Hook of Holland.
5. Flushing / Hook of Holland. — South Germany along both banks of the Rhine.
6. Berlin—Frankfort (Main)—Basel—Switzerland.
7. Berlin—Munich—Rome.
8. Breslau —Dresden—Munich—Rome.
9. Berlin—Stuttgart—Zurich.
10. Berlin—Vienna *via* Breslau and Dresden.
11. Berlin—Budapest—Constantinople.
12. Berlin / Hamburg — Christiania—Stockholm.
13. Berlin—Copenhagen.

1921. — 1. Berlin—Stockholm.
2. Berlin—Copenhagen.

3. Paris, Ostend, London —Berlin—Warsaw.
4. Ostend, Amsterdam —Frankfort (Main)—Ratisbon—Vienna.
5. Paris—Strasburg—Stuttgart—Munich—Vienna.
6. Paris—Strasburg—Stuttgart—Nuremberg—Eger—Prague Warsaw.
7. Amsterdam—Basel—Genoa.
8. Berlin, Hamburg —Amsterdam, Flushing.
9. Berlin—Dresden—Prague—Constantinople.
10. Berlin —Rome, Vienna (*via* Passau)
11. Berlin—Zurich.
12. Berlin—Teschen—Vienna.
13. Berlin—Wirballen—Kowno.

Situation as regards Transport and Capacity of the Railways before and after the War.

Goods traffic showed an average annual increase of about 5 % in the last five years before the war. The increase was higher in the industrial centres. Indeed, a more or less serious lack of wagons was felt every year in the autumn, owing to the increased demand for coal and the moving of the harvest. Nevertheless, the various German railway administrations, who had at their disposal high-powered locomotives in good running order and experienced employees, were generally able to cope with the demands of traffic. On the whole, the trains ran on time ; accident statistics showed that a very high degree of safety in operation had been reached.

The railways made great efforts to get the best administrative results in the running of the lines by means of comprehensive agreements, especially in regard to the exchange of wagons. The table which follows gives the returns for the last year before the war. It also shows how the figures have changed during the months of 1920. As complete statistics for the German railways are not yet available, we have only shown the figures for the Prussian-Hessian railways and those only up to August 1920 inclusive. The Prussian-Hessian railways, in the year 1913, had a length of track of 64 %, and a volume of traffic (measured in axle-kilomètres) of 75 %, of the whole German railway system. The development of traffic on the other German railways was similar to that on the Prussian railways, so that the figures given in this table provide a fairly accurate account of the transport situation for the whole German system.

Traffic Returns for the Prussian-Hessian Railways.

Month	Axle-kilometrage (thousands)	Train kilometrage (thousands)	Daily average of: Axle kilometrage (thousands)	Daily average of: Train kilometrage (thousands)	Daily everage of locomotive km. in: Passenger traffic	Daily everage of locomotive km. in: Goods traffic	Reasons for marked fluctuations
Monthly average 1913	1,950,959	43,176	64,138	1,435	871	582	
1920. January ..	1,245,622	22,323	40,182	720	304	419	
1920. February .	1,314,407	22,785	40,943	814	355	480	Considerable increase in traffic due to the impending 100% rise in fares announced for 1.3.20.
1920. March	1,227,659	22,068	39,602	712	306	411	Strike & disturbances in the Ruhr district.
1920. April	1,315,334	23,044	45,844	768	333	437	
1920. May	1,324,789	25,408	42,735	820	375	444	
1920. June.	1,460,988	26,769	48,699	892	433	467	Introduction of the Summer-time-table. Increase in passenger trains.
1920. July	1,479,372	28,400	47,722	916	463	451	Decreased goods traffic owing to unfavourable economic conditions.
1920. August ...	1,466,518	27,809	47,307	897	454	446	
Decrease in Aug. 1920 compared with monthly average in 1913.	484,441	15,367	16,831	538	147	134	
Reckoned in percentage.....	24.8	35.7	26.2	37.4	48.0	23.1	

The comparison of the transport situation before and after the war shows similar results when rolling stock is considered. The number of wagons in use is a conclusive factor in ascertaining the traffic capacity of the railways, while the figures showing the deficiencies of rolling-stock constitute a fairly reliable guide for estimating traffic requirements.

Data regarding Rolling-Stock.

	Covered wagons		Ordinary open trucks		Totals of all kinds of wagon	
	available	needed	available	needed	available	needed
1913	22,494,447	171,802 *i.e.*, 0.7 % of requirements.	34,624,191	115,445 *i.e.*, 0.3 % of requirements.	659,792,806	417,612
1920	13,989,215	2,867,113 *i.e.*, 17 % of requirements.	24,057,374	8,542,715 *i.e.*, 26.2 % of requirements.	49,003,996	14,390,872

Wagons for Coal, Coke and Briquettes.

	Ruhr		Upper-Silesia		Centre	
	available	needed	available	needed	available	needed
1913	9,679,188	7.653 *i.e.*, 0.07 % of requirements.	3,442,839		1,961,820	4,890
1920	5,944,815	405,024 *i.e.*, 4 % of requirements.	2,217,596	266,692 *i.e.*, 7 % of requirements.	2,094,505	617,002 *i.e.*, 22.7 % of requirements.

The main cause for the difficulties experienced in operating the railways lies — and will probably continue to do so if conditions remain as at present — in the shortage of locomotives in running order. This shortage of locomotives results in temporary stoppages of traffic and immobilises wagons and trains.

General Survey of Rates.

(a) Passenger Rates on German Railways.

	Fare per kilometre in pfennigs, without supplement				Supplement in marks on express trains.		
					1st and 2nd class		3rd cl.
	Class				Kilometres	Marks	Marks
	1st	2nd	3rd	4th			
1. 4. 14	7	4.5	3	2	1— 76	0.50	0.25
					76—150	1.00	0.50
					over 150	2.00	1.00
1. 4. 19	18	7.98	4.81	3	1— 75	2.00	1.00
					76—150	4.00	2.00
					over 150	6.00	3.00
1. 4. 21	54	23.94	14.43	9	1— 75	6.00	3.00
					76—150	12.00	6.00
					over 150	18.00	9.00
1. 6. 21	58.5	32.5	19.5	13	1— 75	8.00	4.00
					76—150	16.00	8.00
					over 150	24.00	12.00

(b) *Goods Rates on German Railways.*

Pre-war rates were frequently raised during the war.

On October 1st, 1917, a transportation tax of 7 % was imposed on all goods, with the exception of coal. Further increases were made as follows :

On April 1, 1918	15 %
On April 1, 1919	60 %
On Oct. 1, 1919	50 %
On March 1, 1920	100 %

In this table the percentage of increase relates to the tariff in force immediately before the increase. In proportion to the pre-war rates the increases would be :

	With Transportation Tax.	Without Tax.
From October 1, 1917	7 %	—
— April 1, 1918	23 %	15 %
— April 1, 1919	97 %	84 %
— October 1, 1919	195 %	176 %
— March 1, 1920.	491 %	452 %

Thus on March 1st, 1920, the rates as a whole were about six times what they had been previous to the war, except when there had been a much greater increase due to the further exceptional measures stated below.

On December 1, 1920, the charges on goods traffic were completely revised.

On April 1, 1921, a general new and considerable increase in rates was introduced. It varies, for the different categories of goods, from 85 to 50 %, on an average 65 %, so that at present — *except where special regulations have raised them to a still higher figure* — railway goods rates are ten times as high as the pre-war freight charges.

The units of the old and of the new tariff are classified and compared in the following table.

2. Rates for transport of coal are subject to special regulation. Formerly, special very reduced rates were in force. These were abolished, and on October 1st, 1919, replaced by a new uniform increased tariff, which was again raised on March 1st, 1920, by 100 %, and on April 1st, 1921, by about 55 %. See comparative table on page 16.)

3. Further increases in tariffs have been occasioned by the fact that the *special* rates, which were very numerous before the war, and which, like the regular rates, had already been raised, have been abolished.

4. When the new goods rates were introduced on December 1st. 1920 (in some cases previously), provisions were made for a general increase,

Regular Tariff for transportation of Goods.

(For coal: see page 16)

Distances in Kilometres		Fast freight		Parcels		Old classification								
						Secondary categories				Main categories				
						A (1)	A (2)	A (2)	T	B	I	II	III	see Tariff 2
		I	II (3)	I	II	New classification								
						An	Bn	Cn	Dn (2)	A	B	C	D	E (4)
Transportation charge (in pfennigs) for 100 kgs.														
For all distances (1) ..	1.4.14	40	20	20	20	20	12	12	12	12	12	12	12	7
	1.4.19	80	40	40	40	40	21	24	24	24	24	24	24	14
	1.4.21	440	330	220	220	156	156	140	120	130	120	100	80	60
Price per ton (in pfennigs) according to distance.														
1-100	1.4.14	20–22	10–11	10–11	8	6.7	5	5	3.5	6	4.5	3.5	2.6	2.2
	1.4.19	44	22	22	18	13.2	10	10	6.9	12	8.9	6.9	5.2	4.4
	1.4.21	296	222	148	115	91	69	69	36	76	53	40	24	18
101-200	1.4.14	20	10	10	8	6.7	5	5	3.5	6	4.5	3.5	2.2	2.2
	1.4.19	44	22	22	18	13.2	10	10	6.9	12	8.9	6.9	4.4	4.4
	1.4.21	282	212	141	111	86	66	66	32	72	51	37	21	17
201-300	1.4.14	18	9	9	8	6.7	5	5	3.5	6	4.5	3.5	2.2	2.2
	1.4.19	44	22	22	18	13.2	10	10	6.9	12	8.9	6.9	4.4	4.4
	1.4.21	266	200	133	107	82	64	50	29	68	49	36	12	15

301-400	1.4.14	16	8	8	8	6.7	5	5	3.5	6	4.5	3.5	2.2	2.2 and 2.4
	1.4.19	40	20	20	16	13.2	10	10	6.9	12	8.9	6.9	4.4	4.4 and 2.8
	1.4.21	252	189	1à6	104	78	57	48	27	65	44	34	18	14
401-500	1.4.14	14	7	7	8	6.7	5	5	3.5	6	4.5	3.5	2.2	1.4
	1.4.19	36	18	18	14	13.2	10	10	6.9	12	8.9	6.9	4.4	2.8
	1.4.21	236	177	118	100	73	52	45	24	61	40	32	16	12
501-600	1.4.14	12	6	6	8	6.7	5	5	3.5	6	4.5	3.5	2.2	1.4
	1.4.19	32	16	16	12	13.2	10	10	6.9	12	8.9	6 9	4.4	2.8
	1.4.21	222	167	111	96	72	51	43	21	61	39	31	14	10
601-700	1.4.14	12	6	6	8	6.7	5	5	3.5	6	4.5	3.5	2.2	1.4
	1.4.19	24	12	12	12	13.2	10	10	6.9	12	8,9	6,9	4.4	2.8
	1.4.21	206	155	103	93	71	49	41	20	59	38	29	18	9
701-800	1.4.14	12	6	6	8	6.7	5	5	3.5	6	4.5	3,5	2.2	1.4
	1.4.19	24	12	12	12	13.3	10	10	6.9	12	8.9	6.9	4.4	2.8
	1.4.21	192	144	96	89	71	46	38	18	59	35	27	11	8
801-900	1.4.14	12	6	6	—	6.7	5	5	3.5	9	4.5	3.5	2.1	1.4
	1.4.19	24	12	12	—	13.2	10	10	6.9	12	8,9	6.9	4.4	2.8
	1 4.21	176	132	88	85	68	46	36	15	57	35	26	10	7
over 900	1.4.14	12	6	6	—	6.7	5	5	3.5	6	4.5	3.5	2.2	1.4
	1.4.19	24	12	12	—	13.2	10	10	6.9	12	8.9	6.9	4.4	2.8
	1.4.21	162	122	81	81	66	43	32	14	56	33	23	9	7

(1) Before December 1st, 1920 the transportation charge up to 100 kg. was reduced as a rule by one-half.
(2) Revised figures.
(3) From April 1st, 1921, the unit of class I has been applied with a weight-surtax to 50 %.
(4) The secondary category Dn also serves as secondary category for main category E.

Tariff for Coal and Coke.

	Transportation charge. Pfennigs per 100 kg.	Freight per kilometric ton in pfennigs.					
		up to 75 km.	76-350 km. (inclus.)	351-400 km. (inclus.)	401-500 km. (inclus.)	501-600 km. (inclus.)	over 600 km. (inclus.)
Up to 1.4.1918 (at most)	7	2,2	2,2	1,4	1,4	1,4	1,4
From 1.4.1918 to 1.4.1919 (at most)	8,06	2,53	2,53	1,61	1,61	1,61	1,61
From 1.4.1919 to 1.10.1919 (at most)	12,88	4,05	4,05	2,58	2,58	2,58	2,58
From 1.10.1919 to 1.3.1920	19,32	6,022	12,15	3,864	2,4	2,4	1,4
From 1.3.1920 to 1.4.1921	38,64	12,15	12,15	7,73	4,8	4,8	2,8
From 1,4.1921.....	68	20	20	12	5	5	1

Alterations in regular freight charges.

a) on April 1st, 1914 *b)* on April 1st, 1919 *c)* on April 1st, 1921.

Km.	Fast Freight		Parcels		Old Classification								
					Secondary Categories				Main Categories				
					A 1	A 2	A 2	Sp. II	B	I	II	III	A 72
	I	II (1)	I	II	New Classification								
					An	Bn	Cn	Dn (2)	A	B	C	D	E (3)
	For 100 kg. in Pfennigs.												
10 *a*	42	21	21	18	17	11	11	10	14	11	10	9	9
b	84	42	42	38	34	22	22	20	28	22	20	18	18
c	736	552	368	335	248	225	196	156	206	173	140	104	78
25 *a*	80	40	40	32	29	19	19	15	25	17	15	13	13
b	158	79	79	69	58	38	38	30	50	36	30	26	26
c	1,180	885	590	508	384	329	280	210	320	253	200	140	105
50 *a*	138	69	69	54	48	31	31	24	42	29	24	19	18
b	272	136	136	117	95	62	62	48	83	58	48	38	36
c	1,920	1,440	960	795	612	501	420	300	510	385	300	200	150
100 *a*	248	124	124	99	86	59	59	44	72	54	44	34	29
b	510	255	255	215	170	117	117	87	142	107	87	69	58
c	3,400	2,550	1,700	1,370	1,068	845	700	480	890	650	500	320	240

150 *a*	350	175	175	140	121	87	87	65	102	80	65	45	40
b	730	365	365	306	239	172	172	129	201	158	129	89	79
c	4,810	3,608	2,405	1,925	1,500	1,117	959	638	1250	905	685	425	325
200 *a*	450	225	225	180	154	112	112	82	132	102	82	56	51
b	946	473	473	394	304	221	221	162	261	201	162	111	101
c	6,220	4,665	3,110	2,480	1,932	1,508	1,218	795	1,610	1,160	879	530	410
300 *a*	630	315	315	260	221	162	162	117	182	147	117	78	78
b	1,380	690	690	572	436	320	320	231	379	290	231	154	144
c	8,880	6,660	4,440	3,590	2,748	2,145	1,722	1,080	2,290	1,650	1,230	720	560
500 *a*	930	465	465	420	350	262	262	187	312	237	187	122	105
b	2,128	1,064	1,064	867	700	517	517	369	615	467	369	241	207
c	13,760	10,320	6,880	5,590	4,260	3,237	2,646	1,590	3,550	2,490	1,890	1,060	820
700 *a*	1,170	585	585	580	480	362	362	257	432	327	257	166	133
b	2,680	1,340	1,340	1,104	964	714	714	507	852	645	507	328	263
c	18,040	13,530	9,020	7,480	5,700	4,238	3,486	1,995	4,750	3,260	2,490	1,330	1,010
1000 *a*	1,530	765	765	765	690	512	512	362	612	462	362	232	175
b	3,390	1,695	1,695	1,360	1,360	1,009	1,009	714	1,206	911	714	458	345
c	23,340	17,505	11,670	10,030	7,764	5,577	4,550	2,445	6,470	4,290	3,250	1,630	1,230

[1] The 50% weight surtax, dating from December 1, 1920, is included.
[2] The secondary category Dn. also serves as a secondary category for category E.
[3] The new category E with special list of goods is to be compared with the former tariff for raw materials

Comparative Freight-tables for Coal.

Freight Rates for 100 Kilograms in Pfennigs or for 10 tons in Marks.

From Gelsenkirchen to	Distance	On 1.4 1914	On 1.4 1921	Increase %
Bremen	245	56	525	837
Hamburg	345	56	713	1.173
Flensburg	523	87	874	904
Siegen	140	26	326	1.154
Wetzler	227	36	490	1.261
Berlin	496	104	856	723
Dresden	569	115	909	690
Hanover	236	59	506	758
Munich	665	128	962	652
Nüremberg	491	104	849	716
Mannheim	333	80	695	769
From Senftenberg to				
Hamburg	413	73	794	988
Stettin	240	49	516	953
Berlin	134	32	319	897

From Könishütte to	Distance	On 1.4 1914	On 1.4 1921	Increase %
Königsberg (Prussia)	669	100.2	965	863
Stettin	511	75.3	868	1.052
Magdeburg	600	119.6	933	680
Berlin	505	105.4	865	721
Dresden	450	98.6	822	734
From Dittersbach (Northern Silesia) to				
Königsberg	639	97.2	952	879
Stettin	395	59.1	784	1.227
Magdeburg	412	84.5	794	840
Berlin	340	73.9	669	846
Dresden	217	57.5	512	801

General financial position of the German Railway Administration.

	Actual Figures 1913 (millions of marks)	Actual Figures 1914 (millions of marks)	Estimates 1920 (millions of marks)	
REGULAR ADMINISTRATION				RECEIPTS
REVENUE				With reference to *2a* and *b* :
1. Imperial Ministry of Transport	—	—	0,237	The increase in receipts is to be attributed to the increase in passenger and goods rates.
2. Operation :				
a) Passenger traffic ...	965,335	2,111,400	3,935,000	
b) Goods traffic	2,141,375	4,843,176	18,699,000	
c) Miscellaneous	243,984	612,301	327,222	With reference to *2 c* :
Total operation	3,350,694	7,566,877	14,961,222	The increase in receipts is due to the larger returns from "Miscellaneous receipts."
3. Miscellaneous receipts	—	—	2,100	
TOTAL REVENUE.....			14,973,559	
EXPENDITURE				EXPENDITURE
1. Imperial Ministry of Transport.....	—	—	24,798	With reference to *2a* :
2. Operation :				Expenditure on personnel has risen owing to the increase in numbers, due to the introduction of the 8 hour-day, and owing to the rise in salaries and wages.
a) Expenditure on personnel...	1,431,428	7,550,744	13,714,145	
b) Expenditure on material.....	916,749	3,952,724	13,104,049	
Total operation	2,348,077	11,503,468	26,818,194	

	Actual Figures 1913 (millions of marks)	Actual Figures 1914 (millions of marks	Estimates 1920 (millions of marks)	
Brought forward....	2,348,077	11,503,468	26,818,195	
3. Miscellaneous Expenditure.....	—	—	1,050	With reference to *2b*:
4. Debt Service (Administration, Amortisation and Interest).	—	—	2,519,000	The increased expenditure on material is explained by the excessive use made of material to compensate for that lost as a result of the war, and by the rise in prices.
TOTAL EXPENDITURE..	—	—	29,363,042	
Deficit on Operation....	1,002,617	3,936,591	11,856,972	
Total Deficit (Imperial Subsidy).....			14,399,483	
EXTRAORDINARY BUDGET				With reference to *4*:
REVENUE	—	—	2,700	Under Art. 92 of the Imperial Constitution, the service of the German Administration debt is not included in the budget of the Administration.
Expenditure (on construction).....	—	—	1,986,176	
Supplementary Expenditure (Imperial Subsidy)	—	—	1,983,476	

The figures for the years 1913 and 1919 show only operation receipts and expenditure. Those for 1920 and 1921 include miscellaneous revenue and expenditure (expenses of the Ministry, debt services, construction). The latter figures are not available for the years 1913 and 1919.

Deficit on Operation. — Owing to the causes stated above, the profit on operation for the year 1913 was replaced by a deficit on operation in the succeeding years, the increase in expenditure being far greater than the increase in receipts.

The large items of expenditure in the extraordinary budget are for the repair and increase of rolling-stock.

II.

NAVIGATION ON INLAND WATERWAYS.

Goods and Shipping Traffic on German Waterways.

The statistics for traffic on German waterways during 1913, 1918 and 1920 clearly demonstrate the effects of the war.

The total traffic of the more important ports for 1913 was about 123½ million tons, as compared with only about 59 million tons in 1918. How far this reduction to less than one-half of the former traffic has been remedied in 1920 it is unfortunately impossible to estimate with accuracy, because statistics are not yet available for 1920. Some isolated returns for the most important ports demonstrate, however, the great burden under which Germany's economic system is labouring; they show that in many cases the volume of traffic is still much less than one-half of the peace-time figure.

The returns from the seaports show in a particularly striking way the decrease in imports and exports.

At Hamburg the figures have fallen from 12.6 to 3.7 million tons; at Emden from 2.9 to 1.3 ; at Stettin from 4.2 to 1.9. In the case of the last-named port, the figures are explained by the change in the political situation on the eastern frontier of Germany, just as the cessation of trade with the interior of Russia has had a most marked effect at Königsberg, where traffic has fallen from 1.1 million tons to 0.1 million, or to one-eleventh of its former volume.

A similar falling off—which is connected wit the import and export trade through Rotterdam — has taken place in the Rhine traffic; this is shown by the figures for traffic crossing the frontier at Emmerich: 11.9 million tons as against 37.5 millions for 1913. The somewhat more favourable figures for Mannheim and more especially for Rheinau and Ludwigshafen are due to the fact that, since the supply of Saar coal has been cut off for South Germany, the coal traffic from the Ruhr to the upper Rhine has assumed larger dimensions.

Summary of Goods and Shipping Traffic upon German waterways, taken from the figures for the 129 largest ports in the years 1913, 1918 and 1920.

1913

Total goods traffic. Tons.	Divided into Incoming. Tons.	Divided into Outgoing. Tons.	Total Number of incoming & outgoing boats.	Main classes of goods Carried
123,585,299	68,029,648 (55 %)	55,555,651 (45 %)	1,019,038	Fuel (coal, briquettes, lignite, peat).
	These figures are divided as follows.			
	a) Eastern waterways.			Earth of all kinds.
3,088,055	2,300,100	787,955		
	b) The Oder Basin.			Raw and cut stone.
10,861,946	4,179,755	6,682,191		
	c) Waterways of Brandenburg.			Lime and cement.
9,709,070	8,026,766	1,682,304		
	d) The Elbe Basin.			Ore, iron and steel, wood of all kinds.
19,678,961	9,105,169	10,573,792		
	e) The Weser Basin.			Cereals, sugar of all kinds.
1,407,302	866,821	540,481		
	f) The Ems.			Manure of all kinds.
6,439,099	3,201,132	3,237,697		
	g) Lake Constance.			Various other products.
171,538	124,354	47,184		
	h) Upper Rhine.			
19,146,251	15,483,343	3,662,908		
	i) Middle Rhine.			
3,617,274	1,971,102	1,646,172		
	k) Lower Rhine.			
38,203,729	18,717,436	24,722,471		

Summary of Goods and Shipping Traffic upon German waterways, taken from the figures for the 129 largest ports in the years 1913, 1918 and 1920

1913 (suite)

Total goods traffic. Tons.	Divided Into Incoming. Tons.	Divided Into Outgoing. Tons.	Total Number of incoming & outgoing boats.	Main classes of goods Carried
	l) Necker :			
397,115	112,975	384,140		
	m) Main :			
3,823,019	2,900,929	922,090		
	n) Moselle and Saar :			
322,057	188,804	138,253		
	o) Danube Basin :			
303,278	136,491	166,787		
	Ceded territory :			
	p) The canals of Alsace :			
1,180,427	719,471	460,956		

The upstream traffic amounted to about 60 %.
The downstream traffic to about 40 %.

1918.

Total goods traffic:	58,973,218 tons.
This total is divided as follows:	
Coal, including briquettes	24.395,198 tons.
Lignite	3,523,670 »
Coke	7,390,871 »
Iron	324,518 »
Ore	7,247,974 »
Building material	3,334,089 »
Cereals	449,417 »
Wood	2,899,226 »
Fats and oils	10,532 »
Other goods	9,399,723 »

No other reliable figures are available.

For 1920 only the returns from the ports mentioned below are available; the corresponding figures for 1913 are given for comparison:

1920.

Total Goods Traffic		Incoming		Outgoing		Main classes of goods carried
1920 Tons	1913 Tons	1920 Tons	1913 Tons	1920 Tons	1913 Tons	
			Bremen.			
550,146	802,052	368,736	578,348	188,410	223,704	Coal, building material, cre-
			Hamburg.			
3,666,698	12,632,618	1,701,081	5,382,084	1,065,617	7,250,534	Wood, earth, stone.
			Lubeck.			
413,959	799,063	331,004	448,409	82,955	350,654	Fate, oils, cereals.
			Stettin.			
1,924,773	4,248,634	886,161	1,834,214	1,039,612	2,406,420	Foodstuffs.
			Emden.			
1,262,135	2,867,706	691,384	1,349,369	570,751	1,518,337	
			Königsberg.			
126,883	1,130,403	97,716	978,311	29,167	152,092	

Mannheim.						
3,718,792	5,520,671	3,166855	4,734,717	551,937	785,954	
Rheinau.						
2,423,782	1,076,545	2,388,038	1,828,022	35,664	48,523	
Ludwigshafen.						
2,474,128	2,872,739	1,909,392	2,000,591	564,746	872,148	
Duisburg-Ruhrort.						
10,545,663	28,913,462	1,238,792	9,070,563	9,336,871	19,842,899	
Magdeburg.						
699,086	550,520	245,432	199,737	423,654	350,883*	* Figures for 1913 incomplete.
Berlin.						
2,682,174	3,931,270	2,148,615	3,389,570	533,559	541,700	
Riesa.						
245,893	643,175	176,448	501,199	69,447	141,976	
Breslau.						
494,176	1,565,613	205,780	505,269	288,396	1,060,344	
Cosel.						
1,671,553	3,698,247	724,277	1,367,710	1,947,276	2,330,537	
Frontier traffic via Emmerich.						
Downstream		Upstream		Total		
6,933,416	17,638,484	5,038,014	19,823,047	11,971,430	37,461,531	Coal, coke, building material, wood, iron, cereals, foodstuffs, fats and oils.

7.

MOTOR TRANSPORT.

The recovery of motor traffic throughout Germany is very much hampered by the dearth of home-produced spirit for motor vehicles. As a result of the unfavourable economic situation and of the deliveries of benzol which Germany is compelled to make, there is only a very limited supply of German benzol available for use. Owners of motor vehicles have therefore no alternative but to purchase their supplies of spirit abroad and at high prices.

The high price of tubes and tyres also has a detrimental effect upon the recovery of the motor transport traffic. The number of motor vehicles for carrying goods and passengers is far lower than before the war. According to the statistics for February 1st, 1920, there were in Germany only 32,450 touring cars, as against 60,876 on 1.1.1914, and 9,369 motor bicycles, as against 22,557, on 1.1.1914. For their relations with foreign countries too, the owners of motor vehicles meet with great difficulties. This is partly because the new States bordering on Germany which have been formed since the war have not yet adhered to the International Convention of October 11th, 1909, with reference to motor traffic, and partly because some States enforce payment of disproportionately high sums as security against evasion of customs duties when foreign motor vehicles cross the frontier.

There is nothing of importance to add with regard to air traffic.

GREAT BRITAIN.

I.

RAILWAYS.

The position of the railways of the United Kingdom before the war is shown in the general report prefixed to the railway returns for the year 1913 issued by the Board of Trade in 1915 (Cd. 8038).

On the outbreak of war, control was taken by the Government over the railways in Great Britain under the Regulation of the Forces Act, 1871, the control being exercised on behalf of the Government by a Committee of general managers, styled the Railway Executive Committee. The relations of the Government with the companies were subsequently defined by agreements concluded between the companies and the Board of Trade, under which the companies' receipts were guaranteed on the basis of their 1913 earnings with provision for deferred maintenance. These agreements have now been the subject of consideration by a committee appointed under the presidency of Lord Colwyn. Control was extended, under similar conditions, to Irish railways as from the 1st January, 1917.

A detailed statement in regard to the control of railways during the war, with particulars of the agreements, and of their position at the end of the war, in regard to finance, rates, statistics, labour, traffic, congestion, development, etc., is given in a paper presented to Parliament by the Ministry of Transport upon the Estimates for 1920-1921 (Cmd. 654). Statements showing the results of railway working during the period of Government control up to August, 1919, when the Ministry of Transport Act, 1919, came into force, are given in Parliamentary papers (Cmd. 147 and 402).

The Ministry of Transport was established to co-ordinate and exercise the powers and duties of existing Government Departments in relation to railways, light railways, tramways, canals, waterways and inland navigation, roads, bridges and ferries, and vehicles and traffic thereon, harbours, docks and piers. Certain temporary powers also were conferred on the Minister, who was charged with the responsibility for initiating and formulating a transportation policy within two years from the passing of the Act. In accordance with this direction, it is intended to introduce a new Transport Bill in the next Session of Parliament. Government control of the Railways under the conditions outlined ceased on August, 15th 1921.

Material:—An indication of the condition of rolling-stock and of traffic congestion in December, 1919, is given in a statement by the Minister of Transport to members of Parliament (Cmd. 493). Since that date, however, conditions have greatly improved.

Traffic:—From the beginning of 1920, a series of monthly railway statistics, compiled on a new basis, has been issued by the Ministry of Transport.

Light railways were not brought under Government control during the war, but little or no progress was possible in that period, although it is recognised that development will be required in the future in the interests of agriculture and industry.

London local railways were also excepted from control, and these, as well as many of the tramway and public service vehicle undertakings throughout the kingdom, both publicly and privately owned, have recently been authorised to increase their statutory fares and charges. War arrears of repairs and renewals of rolling-stock are being steadily overtaken. Revised statistics applicable to tramway undertakings are now being compiled by the Ministry of Transport.

Rates and Fares:—The present increases over pre-war rates are 75 % on passenger fares and about 112 % on all goods rates.

Consumption of fuel for the years 1913, 1919 and 1920.

Year.	English Railways.	Scottish Railways.	Irish Railways.
	Tons.	Tons.	Tons.
1913	11,086,232	2,060,480	429,911
1919	10,249,100	2,096,400	412,600
1920		13,800,000	(Estimated for United Kingdom.

Sources of Supply:

Home coal-fields, usually those adjacent to the respective railway companies' systems.

Average cost per ton: The only available indication consists of average large steam coal prices f. o. b.—

	s. d.
1913	20 2
1919	47 3
1920	from 68 9 (Jan.) to 80 0 (Dec.)

ANNEX I.

Report to the Board of Trade on the annual statement for 1913[1].

Preliminary Remarks.

Up to the end of the year 1912 the Annual Returns were based on statistics furnished to the Board of Trade by the railway companies under Section 9 of the Regulation of Railways Act, 1871, as amended by Section 32 of the Railway and Canal Traffic Act, 1888.

On January 1st, 1913, a new Act—the Railway Companies (Account and Returns) Act, 1911—came into force, whereby each railway company in the United Kingdom is required to furnish to the Department annual accounts and statistical returns in accordance with forms set out in the first schedule to the Act.

The expression " railway company " is defined in Section 6 (1) of the Act as meaning " any company or person working a railway under lease or otherwise. " Hence the Act does not apply to non-working companies, and in order to obtain returns in respect of these it has been found necessary to fall back on the provisions of the earlier Acts referred to above.

In the detailed tables the accounts and statis tical returns of working companies (including all joint committees separately treated in Abstract J of the parent companies' accounts), furnished under the Act of 1911, are summarised in Section A ; and the statements obtained with regard to non-working companies are summarised in Section B. Section C relates to capital on which dividend is guaranteed by railway companies, but which is not included as railway capital in Sections A and B ; and certain miscellaneous information is given in the Appendices following Section C.

The information given in Section A is of a much more complete and detailed character than that contained in previous returns. Particulars are given for the first time in respect of :

Receipts and expenditure on capital account ;
Appropriation of net income ;
Miscellaneous property owned ; and
Number of live-stock carried.

The accounts of revenue receipts and expenditure have been expanded so as to show particulars under each of the following heads :

Railways ;
Passenger road vehicles ;
Steamboats ;

[1] Owing to the voluminous nature of the Report, it has been thought impracticable to reproduce it here *in toto*. She references are, of course, to the Sections, Appendices, etc., which figure in the Report itself.

Canals ;

Docks, harbours, and wharves ;

Hotels, and refreshment rooms and cars where catering is carried on by the companies ;

Other separate business ;

Miscellaneous net receipts.

Additional information has been given with regard to the length of running lines (first track, second track, &c.), rolling stock, and mileage of each company.

The particulars given under the head of "Number of passengers," and "Tonnage of goods," show, in addition to those previously given with regard to the *total* numbers and tonnage carried by each company, the number and tonnage *originating on the system of each company* ; traffic booked through, over the lines of more than one company, being included, in these latter figures, by the *booking* company only.

Changes of basis and consequent non-comparability of figures for 1913 *with those of previous years.*

Owing to the changes of basis consequent on the requirements of the new Act, or made incidentally in connexion therewith, the figures for 1913 are not properly comparable with those for previous years. Hence no attempt has been made to enter particulars for 1913 in the summary tables following the report ; the tables have been reprinted as they appeared in the returns for 1912.

Further information regarding changes of basis will be found under the appropriate headings below.

I. Accounts.

Authorised and paid-up Capital.

The detailed tables A 1 and B, are somewhat similar to the table No. 1 given in earlier issues of the Returns. Attention must be drawn, however, to the following differences of basis :—

(1) Tables A 1 and B show the amount of paid-up capital ranking for dividend or interest ; the table No. 1 in previous returns showed the *total* amount of capital paid up, whether ranking for dividend or not. In the case of nearly all the companies dividend or interest was payable on the whole of the capital paid up at the end of the year under review. In connection, however, with the vesting in the Metropolitan Company, of the Great Northern and City Railway, the Metropolitan Company issued £ 1,050,000 of capital on which dividend did not accrue in 1913, and the *total* amounts of capital paid up but not ranking for dividend, at the end of the year, were as follows :—Ordinary, £ 1,005,000 ; Preference, £ 90,000 ; Guaranteed, £ 2,000 ; Total, £ 1,097,000.

(2) The capitalised value of rent-charges, which at the end of 1912 amounted to £ 1,145,000, was included in previous returns as paid-up capital, under the head of "Loans"; it is now excluded from the total paid-up capital, and is included in the figures given in the column headed "Deductions from borrowing powers, &c."

(3) Certain companies formerly included in Table 1 have been excluded from the new tables A 1 and B as being of the nature of *dock*, &c., companies rather than railway companies, or as belonging more properly to the new table forming Section C. One company has been excluded as really having no separate capital, and three companies have been excluded whose undertakings have become derelict.

(4) In a number of cases the companies have altered the basis of their accounts in such manner that these show, in comparison with the accounts of previous years, apparent increases and decreases where no actual change has taken place.

In the following table the totals for 1912, published in the last issue of the returns, have been modified, in respect of the changes referred to under (1) to (4) above, so as to be fairly comparable with those for 1913; and the increases and decreases, which appear in the last line of the table, show, with substantial accuracy, the real increases and decreases in the latter year. The figures printed in italics represent the amounts (included in the figures in ordinary type) by which the capital of the various companies hab been nominally increased or reduced on the conversion, consolidation, and division of stocks. At the end of the year 1913 the net nominal additions formed 18.8 per cent. of the ordinary capital, 12.8 per cent. of the preference and guaranteed capital, 12.3 per cent. of the loans and debenture stock, and 14.9 per cent. of the paid-up capital of all classes.

The capital authorised to be raised at the end of 1913, as shown above is exclusive of £ 5,025,231 of share capital, and £ 1,430,143 of loan capital, issued, or to be issued, as additional stock to provide authorised money.

The total amount of paid-up capital stated in the table is somewhat in excess of the actual amount, the capital of certain companies and committees shown separately in table A 1 or in Section B having been subscribed in part by other railway companies. It appears that the duplication thus arising amounted, at the end of 1913, to about £ 11 millions.

Of the total paid-up capital at the end of the year as shown in the table, ordinary stock formed 37.0 per cent., preference and guaranteed 35.9 per cent., and loans and debenture stock 27,1 per cent.

	Authorised Capital.		
	By shares and stock.	By loans and debenture stock.	Total.
	Thousand £.	Thousand £.	Thousand £.
Total for 1912, as shown in last issue of returns	1,008,698	401,954	1,401,652
Estimate of additions and deductions required to render total for 1912 comparable with total for 1913	—7,989	+1,508	—6,481
New total for 1912 on basis approximate to that of the total for 1913	1,000,709	403,462	1,404,171
Total for 1913 :			
Table A 1	962,382	390,366	1,352,748
Section B	42,861	16,943	59,804
Capital raised but not ranking for dividend.	—	—	—
Altogether. . .	1,005,243	407,309	1,412,552
Approximate real increase or decrease in 1913 as compared with 1912	+4,534	+3,847	+8,381

Paid-up Capital.					
Ordinary.	Preference.	Guaranteed.	Loans.	Debenture stock.	Total.
Thousand £.	Thousand £.	Thousand £.	Thousand £.	Thousand £.	Thousand £.
493,176	356,117	125,300	12,343	348,028	1,334,964
+93,098	*+43,941*	*+10,061*	*+6*	*+44,356*	*+198,462*
—2,648	—2,781	—863	—156	—71	—6,519
—982	*+40*	*+301*	*+6*	*+194*	*— 453*
490,528	353,336	124,437	12,187	347,957	1,328,445
+92,116	*43,981*	*+17,362*	—	*+44,550*	*+198,009*
467,399	350,112	118,143	11,371	338,041	1,285,066
+91,971	*43,932*	*+17,363*	—	*+44,018*	*+197,284*
24,660	4,594	6,190	732	11,672	47,848
+855	*+50*	—	—	*+532*	*+ 1,437*
1,005	90	2	—	—	1,097
493,064	354,796	124,335	12,103	349,713	1,334,011
+92,826	*43,982*	*+17,363*	—	*+44,550*	*+198,721*
+2,536	+1,460	—102	—84	+1,756	+5,566
+ 710	*+ 1*	*+ 1*	—	—	*+ 712*

Rates of Dividend and Interest.

Calculations based on the detailed tables A 1 and B have been made with the object of ascertaining, in respect of the year 1913, as regards capital ranking for dividend or interest, the average rate per cent. of the dividend *paid* on the share capital of each class, and the average rate per cent. of the interest *payable* on the loan capital of each class.

The results of the calculations are given on pages 39 and 40.

Receipts and Expenditure on Capital Account.

The returns now presented contain (tables A 2 and A 3) information regarding the receipts and expenditure, on capital account, of working companies only. Similar information will be given in future with regard to non-working companies also.

The tables A 2 and A 3 include a considerable amount of duplication arising from subscriptions made by working railway companies to the capital of other working railway companies, or to the capital of joint committees separately enumerated in the tables. The exact extent of this duplication is not clearly shown by the accounts. It appears probable, however, that the total duplication in table A 2, both under the head of receipts and under that of expenditure, amounts to approximately £ 27 millions. The totals, including such duplication, are as follows :—

Receipts	£ 1,143,582,000
Expenditure	£ 1,179,445,000

There was thus a deficit on capital account of nearly £ 36 millions. According to the balance sheets, however, the reserve funds of the working companies, at the end of 1913, amounted to approximately £ 22 millions, and large sums of money were also held by the companies in connection with savings banks, and superannuation and other provident funds.

The details of capital expenditure *(a)* up to the end of the year 1913, and *(b)* during the year 1913, are shown on page 41.

Table A 4 shows the revenue receipts and expenditure, under various heads, of each working company, in 1913. The figures given on page 42 for the United Kingdom have been extracted from that table or calculated therefrom :—

These figures show a profit on the undertakings of each kind. The detailed statements in table A 4 indicate that in a number of cases the accounts of individual companies show losses on subsidiary undertakings. Such losses, however, may of course have been more than offset by gains accruing from the favourable influence exercised by these undertakings on other branches of the business of the companies concerned.

The total net income (£ 52,131,000) is not properly comparable with the total net receipts shown in previous issues of the returns, as the latter did not include certain miscellaneous net receipts (chiefly interest and dividends from investments in other companies, and general interest) which are included in the total net income now shown.

	Rates of Dividend.							
	On the capital including nominal additions and deductions.				On the capital including nominal additions and deductions.			
	England and Wales.	Scotland.	Ireland.	United Kingdom.	England and Wales.	Scotland.	Ireland.	United Kingdom.
	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
Ordinary [1]	4.05	2.01	4.36	3.74	4.71	3.83	4.32	4.61
Preference [1]	3.49	3.96	3.89	3.57	4.00	4.50	3.89	4.08
Guaranteed [1]	3.99	3.99	4.12	4.00	4.65	4.80	4.22	4.65
Loans [2]	3.50	3.72	4.10	3.55	3.50	3.72	4.10	3.55
Debenture Stock [2]	3.39	3.57	4.01	3.43	3.93	3.92	4.08	3.93
All classes	3.71	3.06	4,14	3.64	4.29	4.17	4.17	4.27

[1] Rates actually paid.
[2] Rates payable.

The following statement shows, in respect of the capital *ranking for dividend or interest*, the amounts of each description (including nominal additions), classified according to the rates of dividend paid on the share capital, and the rates of interest payable on the loan capital :—

	Ordinary.		Preference.		Guaranteed.		Loans.		Debenture Stock.	
	Thous'd £.	Per-centage of total.	Thous'd £.	Per-centage of total.	Thous'd £.	Per-centage of total.	Thous'd £.	Per-centage of total.	Thous'd £.	Per-centage of total.
Nil	50,055	10.2	9,475	2.7	—	—	9	0.1	—	—
Not above 1 per cent	29,351	5.9	119	0.0	—	—	—	—	—	—
Above 1 and not above 2 per cent	33,800	6.9	4,113	1.2	—	—	—	—	3	0.0
,, 2 ,, ,, 3 ,,	117,629	23.9	114,010	32.1	23,211	18.6	39	0.3	193,004	55.2
,, 3 ,, ,, 4 ,,	40,810	8.3	164,050	46.3	65,862	53.0	11,592	95.8	112,644	32.2
,, 4 ,, ,, 5 ,,	78,403	15.9	61,774	17.4	33,166	26.7	457	3.8	42,850	12.3
,, 5 ,, ,, 6 ,,	26,043	5.3	1,165	0.3	2,012	1.6	6	0.0	1,212	0.3
,, 6 ,, ,, 7 ,,	113,045	23.0	—	—	82	0.1	—	—	—	—
,, 7 ,, ,, 8 ,,	491	0.1	—	—	—	—	—	—	—	—
,, 8 ,, ,, 9 ,,	1,628	0.3	—	—	—	—	—	—	—	—
,, 9 ,, ,, 10 ,,	804	0.2	—	—	—	—	—	—	—	—
Total capital ranking for dividend or interest	492,059	100.0	354,706	100.0	124,333	100.0	12,103	100.0	349,713	100.0
Amount not ranking for dividend or interest	1,005	—	90	—	2	—	—	—	—	—
Total capital paid up	493,064	—	354,796	—	124,335	—	12,103	—	349,713	—

	Up to the end of the year 1913.	During the year 1913 only.
RAILWAY :—	£	£
Lines belonging to working companies :—		
Open for traffic	806,258,000	4,188,000
Not open for traffic	3,342,000	1,602,000
Lines leased	1,667,000	50,000
,, jointly owned	44,543,000	330,000
,, ,, leased	1,485,000	2,000
Rolling stock	143,701,000	1,888,000
Manufacturing and repairing works and plant :—		
Land and buildings	12,567,000	163,000
Plant and machinery	6,457,000	45,000
OTHER :—		
Horses	269,000	1,000
Road vehicles employed in the conveyance of passengers and in the collection and delivery of parcels and goods	348,000	*Cr. 16,000*
Steamboats	6,781,000	*Cr. 89,000*
Canals	21,079,000	*Cr. 11,000*
Docks, harbours and wharves	47,152,000	955,000
Hotels	8,153,000	89,000
Electric power stations, etc.	4,554,000	228,000
Land, property, etc., not forming part of the railway or stations	39,817,000	324,000
Subscriptions to other companies:-		
To other railway companies	15,564,000	173,000
To companies other than railway companies	2,072,000	1,000
Miscellaneous	4,580,000	296,000
UNCLASSIFIED	9,056,000	—
TOTAL	1,179,445,000	10,219,000

No corresponding figures respecting expenditure on Capital Account are available for earlier years.

Revenue Receipts and Expenditure.

	Gross Receipts.	Expenditure.	Net Receipts.	Proportion of expenditure to gross receipts under each head.	Proportion of net receipts under each head to total net receipts.
	£	£	£	Per cent.	Per cent.
Railways	124,860,000	78,874,000	45,986,000	63.17	88.21
Passenger Road Vehicles	126,000	123,000	3,000	97.26	.01
Steamboats	2,579,000	2,434,000	145,000	94.39	.28
Canals	1,101,000	750,000	351,000	68.11	.67
Docks, harbours, and wharves	3,735,000	2,459,000	1,276,000	65.85	2.45
Hotels, and refreshment rooms and cars where catering is carried on by the companies	3,197,000	2,641,000	556,000	82.61	1.07
Other separate businesses	117,000	39,000	78,000	33.10	.15
Miscellaneous net receipts	3,736,000	—	3,736,000	—	7.16
Total	139,451,000	87,320,000	52,131,000*	62.62	100.00

* Net income.

In the earlier issues of the returns particulars were given under the heads of "receipts from" and "expenditure on" *(a)* railway working, and *(b)* steamboats, canals, docks, harbours and wharves. Those particulars are not comparable with the particulars shown under the new headings, the allocation of receipts and expenditure, as between railway and other undertakings, having been made, in 1913, on a basis differing from that of previous years.

Receipts in respect of Railway Working.

It will be seen from the detailed table A 5 that the total gross receipts from railway working in the United Kingdom in 1913 were as follows :—

	£
From passenger train traffic	56,978,000
From goods train traffic	66,640,000
Miscellaneous	1,242,000
Total	124,860,000

Receipts from passenger train traffic included the following :—

	£
From ordinary tickets :	
First class	3,772,000
Second	1,097,000
Third	35,730,000
Total	40,599,000
From workmen's tickets	1,675,000
From season tickets :	
First class	1,678,000
Second class	629,000
Third class	2,561,000
Total	4,868,000
From mails	1,284,000
From parcels, excess luggage, &c. (less expenses of collection and delivery)	8,552,000
Total receipts from passenger train traffic	56,978,000

Receipts from workmen's tickets are shown separately for the first time. Up to the end of 1912 workmen's daily tickets were included with

ordinary third class tickets, and workmen's weekly tickets were included with third class season tickets.

		Receipts.	Percentage of total.
First class	£	5,450,000	11.5
Second class	»	1,726,000	3.7
Third class	»	39,966,000	84.8
Total	£	47,142,000	100.0

The average receipts per ticket issued, in 1913, were as follows :—
Ordinary tickets (return tickets being counted as two tickets) :

	s.	d.
First class	2	10.1
Second class	1	8.4
Third class	–	9.2
All classes	–	10.0
Workmen's tickets (on single journey basis)	–	1.6

Season tickets (on annual basis) :

	£	s.	d.
First class	15	14	7
Second class	7	11	7
Third class	6	5	9
All classes	8	3	2

Receipts from goods traffic included the following :—

Merchandise (less expenses of collection and delivery)	£	32,990,000
Live stock	»	1,678,000
Coal, coke, and patent fuel	»	22,909,000
Other minerals	»	9,063,000
Total	£	66,640,000

Separate figures for "coal, coke and patent fuel" are given in the returns for the first time.

The average receipts per ton were as follows :—From merchandise, 9*s.* 0.6*d* ; from coal, coke and patent fuel, 2*s.* 0.2*d.* ; from other minerals, 2*s.* 6.1*d.*

Of the total receipts from traffic, those from passenger train traffic formed 46.09 per cent., and those from goods train traffic 53.91 per cent.

The receipts from passenger train traffic and from goods train traffic per train mile and per mile of line open for traffic (first track) were as follows :—

	Per train mile.			Per open mile.		
	From Passenger Train Traffic	From Goods Train Traffic	Total	From Passenger Train Traffic	From Goods Train Traffic	Total
	d.	d.	d.	£	£	£
England and Wales ...	50.59	102.29	69.39	2,980	3,451	6,431
Scotland	46.39	82.49	62.08	1,468	2,007	3,475
Ireland	46.44	85.48	59.08	704	662	1,366
United Kingdom	49.96	98.86	68.07	2,405	2,813	5,218

Expenditure in respect of Railway Working.

The total expenditure in respect of railway working in 1913, shown in Table A 6, is as follows :—

	£
Maintenance and renewal of way and works	12,562,000
Maintenance and renewal of rolling stock :	
Locomotives	6,305,000
Carriages	3,771,000
Wagons	3,748,000
Locomotive running expenses	18,166,000
Traffic expenses	24,180,000
General charges	2,792,000
Law charges	196,000
Parliamentary expenses	46,000
Compensation (Accidents and Losses) :	
Passengers	166,000
Workmen	298,000
Damage and loss of goods, &c.	740,000
Rates*	4,899,000
Taxes	7,000
Government Duty	286,000
Running powers (credit)	*126,000*
Mileage, demurrage and wagon hire (balance) . . .	255,000
Miscellaneous	583,000
Total	78,874,000

* Including tithe rente charges.

The following statement shows the expenditure in respect of railway working *(a)* per train mile, and *(b)* per mile of line open for traffic :—

	Per train mile.	Per mile open
	£	£
England and Wales	44.71	4.144
Scotland	36.84	2.062
Ireland	36.87	853
United Kingdom	43,43	3.329

In connection with the statistics of working expenditure the following figures may be of interest as affording some indication of the course of prices of coal and materials. The figures quoted in the case relate to coal of all descriptions and not to those kinds only which are used for locomotive purposes.

Year	Average value per ton of Coal produced, as shown in the Reports of the Chief Inspector of Mines.	Average export price per ton of Coal, and of Iron and Steel Rails. *(Computed from the quantities and declared value of the exports.)*	
		Coal	Iron and Steel Rails
	s. d.	s.	£
1908	8 11	12.65	6.12
1909	8 0¾	11.20	5.79
1910	8 2¼	11.63	5.86
1911	8 1¾	11.31	6.13
1912	9 0¾	12.57	6.16
1913	10 1½	13.82	7.13

It will be seen that the prices quoted were abnormally high in 1913.

The total quantities of coal consumed for locomotive purposes by the railway companies of the United Kingdom in each year from 1908 to 1913 inclusive were as follows :—

1908	12,493,000	tons.
1909	12,274,000	»
1910	12,472,000	»
1911	12,822,000	»
1912	12,636,000	»
1913	13,577,000	»

Appropriation of Net Income.

Table A 7 shows particulars of the total net income of each working company, and of the proposed appropriation thereof.

Allowance having been made for the estimated duplication arising in connexion with joint committees separately enumerated in the table, the totals for the United Kingdom are as follows :—

Net Income

	£
Balance brought forward from Account at 31st December, 1912	1,109,000
Net income for year 1913	52,131,000
Appropriation from reserve	28,000
Total	53,268,000

Proposed Appropriation.

Fixed charges :—	
Interest on loans	361,000
Interest on debenture stock	11,448,000
Miscellaneous	4,055,000
Appropriation to reserve and other special purposes	1,301,000
Dividend on guaranteed and preference stocks	17,239,000
Dividend on ordinary stock	17,705,000
Total	52,109,000
Balance carried forward to 1914 account	1,159,000

The interest and dividend shown above do not include payments in respect of the capital of the companies included in section B of the returns.

II. Statistical returns.

Mileage of Lines Open for Traffic.

Table A I shows the mileage of lines open for traffic, owned, or leased or worked, by each *working* company at December 31st, 1913.

The totals for the United Kingdom are as follows :

	Running lines.						Sidings reduced to single Track.	Total of single Track, including sidings.
	Length of road. First Track.	Second Track.	Third Track.	Fourth Track.	Over four Tracks (reduced to single Track).[1]	Total miles reduced to single Track.		
	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.	Miles.
Owned	22,363	13,010	1,598	1,241	664	38,876	14,271	53,147
Leased or worked	1,548	544	28	19	37	2,176	607	2,783
Together	23,911	13,554	1,626	1,260	701	41,052	14,878	55,930
From this there should be deducted, in respect of mileage included under "Owned" and also under "Leased or worked"	220	162	7	6	1	396	129	525
Giving a net total of	23,691	13,392	1,619	1,254	700	40,656	14,749	55,405
The total for 1912 published in the last issue of the returns was.	23,447	13,237	1,544	1,208	598	40,034	14,875	54,909
The increase or decrease in 1913 according to the returns was thus	+ 244	+ 155	+ 75	+ 46	+ 102	+ 622	— 126	+ 496

[1] *i.e.*, Fourth Track, plus Fifth Track, plus Sixth Track, and so on.

It will be seen that the table shows a considerable increase, in 1913 as compared with 1912 in the length of running lines, with some decrease in the length of sidings. There is reason to believe, however, that the actual changes in 1913 were less than those indicated. The figures deducted above from the total of "owned" and "leased and worked" are *approximate* only, the ownership of certain small pieces of leased or worked line not being shown in the accounts. Moreover the increases and decrease shown in the last line of the table are probably due in part to revision of figures on re-measurement of lines, and to the more general adoption of a uniform method of distinguishing between running tracks and sidings, resulting in the transfer to "running lines" of certain pieces of line formerly regarded as sidings; and one company has excluded from its returns for 1913 a considerable length (about 100 miles) of *dock* sidings which were included in the returns for 1912.

Rolling Stock.

Particulars of the number of locomotives and vehicles of all kinds owned by each working company at the end of the year 1913 are given in Table A II. The totals for the United Kingdom are:—

	Number.
Steam locomotives and tenders:	
Tender engines	14,792
Tank engines	9,843
Tenders	14,971
Rail motor vehicles:	
Number	214
Carrying capacity (seats)	11,078
Trains worked by electric power:	
Electric locomotives	83
Electric motor cars carrying passengers:	
Number	1,019
Carrying capacity (seats)	51,219
Trailer cars:	
Number	1,467
Carrying capacity (seats)	77,297
Coaching vehicles other than electric:	
Passenger carriages:	
Number	54,455
Carrying capacity (seats)	2,614,634
Other	22,159

	Number.
Merchandise and mineral vehicles :—	
Open wagons :	
Under 8 tons	30,727
Of 8 tons and above	375,916
Covered wagons :	
Under 8 tons	20,785
Of 8 tons and above	71,165
Mineral wagons :	
Under 8 tons	4,000
Of 8 tons and above	182,019
Cattle trucks	22,459
All others	53,675
Railway service vehicles	49,691
Road vehicles employed in the conveyance of passengers and in the collection and delivery of parcels and goods :—	
Passenger vehicles	493
Goods and parcels vehicles	33,552

Some of these figures show, on comparison with the totals for 1912, rather large increases. There is reason however to believe that, for the purposes of the new rerurns, a careful re-enumeration was made, which resulted in the inclusion of rolling stock that had previously been omitted. In particular it appears that whilst duplicate stock is included throughout in the figures for 1913, a portion of such stock was probably omitted from the earlier returns.

Miscellaneous Property owned.

Table A III. shows particulars of certain property, other than railway property, owned by each company at the end of the year 1913. The totals for the United Kingdom are as follows :—

Steamboats :	Vessels.	Tonnage.
Exceeding 250 tons net	105	56,025
Not exceeding 250 tons net	118	12,415
	Miles.	
Canals	1,033	
	Length of quay in feet.	
Docks, harbours and wharves	490,490	
	Number.	
Hotels	113	
	Acres.	
Land	30,496	
	Number.	
Houses	58,006	

No corresponding figures are available for earlier years.

Engine Mileage.

Table A IV. shows the mileage run by the engines of each company during the year 1913, and gives the following totals for the United Kingdom :—

	Coaching.	Goods.	Mixed.	Total.
	Miles.	Miles.	Miles.	Miles.
Loaded trains	264,258,000	140,449,000	661,000	405,368,000
Empty trains run for traffic purpose on either the forward or return journey	9,237,000	21,235,000	11,000	30,483,000
Shunting mileage.....	18,665,000	119,142,000	58,000	137,865,000
Other mileage (assisting, light, auxiliary &c.).		54,608,000		54,608,000
Total	292,160,000	280,826,000	730,000	628,324,000
	54,608,000			

Particulars under the heads of "Shunting Mileage" and "Other Mileage (Assisting, Light, &c.) " have not previously been compiled. The total obtained by adding together the figures given in the first two lines of the table above is fairly comparable with the train mileage shown in the returns for 1912 and 1911, thus :—

	Coaching	Goods	Total (including miles run by mixed trains).
	Miles.	Miles.	Miles.
1913	273,485,000	161,684,000	435,851,000
1912	258,768,000	151,893,000	412,520,000
1911	270,276,000	156,500,000	428,633,000

The figures for 1912 were affected by the great coal strike of that year.

Number of Passengers carried.

Table A V. shows in respect of each company *(a)* the number of passengers of each class travelling with ordinary tickets, return tickets being counted as two tickets ; *(b)* the number travelling with workmen's tickets, these being given on a single journey basis ; and *(c)* the number of season tickets of each class, on the basis of *annual* tickets. Particulars are given in respect of the *total numbers* carried by each company (passengers booked through over the lines of more than one company being included by each company), and also in respect of the *numbers originating on the respective companies' systems*, the latter including those passengers only who were *booked* by the respective companies. The totals for the United Kingdom are as follows :—

	Total carried.	Originating on the systems of the respective companies.
	Number	Number
Passengers holding ordinary tickets:		
First class	31,437,000	26,531,000
Second class	13,579,000	12,907,000
Third class	1,094,833,000	936,698,000
Total ...	1,139,849,000	976,136,000
Passengers holding workmen's tickets	314,912,000	256,921,000
Season tickets :		
First class	138,142	106,704
Second class	88,998	82,964
Third class	510,679	407,146
Total ...	737,819	596,814

Whilst the figures set out in the first column may usefully be given in view of the fact that figures on this basis only are available for earlier years, it is obvious that those in the second column afford a far better indication of the total passenger movement in the country taken as a whole. Prior to 1913 the accidental fact that a passenger in the course of a single journey passed over lines belonging to two or more systems led to his being shown as a separate passenger by two or more companies, and given undue weight in the totals.

If it be assumed that each annual season ticket represents 600 single journeys, the figures given above under the head of "originating on the systems of the respective companies" represent the following total numbers of single tickets :—

	Number.
First class	90,554,000
Second class	62,686,000
Third class	1,437,906,000
Total	1,591,146,000

On these figures the proportion per cent. borne by the number of each class to the total number is as follows :—

First class	5·7
Second class	3·9
Third class	90·4

Tonnage of Goods and Number of Live Stock carried.

Table VI. shows the following totals for the United Kingdom :—

	Total carried.	Originating on the systems of the respective companies.
	Tons.	Tons.
General marchandise	121,360,000	72,908,000
Minerals :		
Coal, coke, and patent fuel.	345,115,000	226,936,000
Other minerals	101,726,000	72,193,000
	Number	Number
Live stock :		
Horses	Not separately shown	204,000
Cattle		5,272,000
Calves		954,000
Sheep		14,051,000
Pigs		3,042,000
Miscellaneous		21,000
Total of Live Stock	32,899,000	23,544,000

According to the statistics of mines and quarries the total quantity of coal produced in 1913 was 287,430,000 tons.

As in the case of passenger traffic the figures in the second column are those which really best indicate the total tonnage moved, tonnage booked through over more than one system figuring in this column once only. The amount of duplication from this source in the method of record previously in force was, in fact (as the above figures show), considerably greater in the case of goods traffic than in that of passenger traffic.

Electrical working of Railways.

The table given in Appendix 2 contains particulars of the electrical working of railways in the year 1913. With one exception (the Bessbroock and Newry Tramway, three miles in length) all the lines included in the table are English lines.

At the end of the year the total length (in equivalent of single track) worked *solely* by electricity was 205 miles 70 chains; the length worked *partly* by electricity being 314 miles 52 chains. The corresponding lengths at the end of 1912 were 210 miles 60 chains, and 281 miles respectively.

The number of miles travelled was as follows :—

	Train miles.		Car miles.	
	1913.	1912.	1913.	1912.
	Miles.	Miles.	Miles.	Miles.
Passenger trains	26,903,000	24,982,000	102,698,000	95,759,000
Goods and mineral trains (including 'mixed,' *i.e.*, goods and passenger, trains).	33,000	32,000	185,000	173,000
Total ...	26,936,000	25,014,000	102,883,000	95,932,000

The total quantity of electricity used in 1913 was 268,289,000 Board of Trade units as compared with 252,926,000 in 1912. These figures do not represent the entire quantity of electrical energy generated, the quantity lost in conversion being excluded.

III. General Observations.

It has been customary to give at the end of the annual reports a summary statement comparing the more important totals for the year under review with those for the year immediately preceding, but no exact comparison of this kind can be made between the totals for 1913 and those for 1912, owing to the changes of basis which have been indicated.

It is clear, however, from the statistics available, that in 1913 the railway companies enjoyed a considerable measure of prosperity. From the shareholders' point of view one of the best indices of the net result of railway working in a particular year is that afforded by the statistics showing the average rate per cent. per annum of the dividend paid by the companies collectively on their total ordinary capital. During the nine years ending 1912 the average rate paid on the total ordinary capital *(exclusive of nominal additions)*, whether ranking for dividend or not, was 4.08 per cent., the highest annual average being 4.45 in 1911, and the lowest 3.67 in 1908. The average for the year 1913 was 4.60. The basis of the rate was slightly altered as between 1912 and 1913, but the alteration does not appreciably affect the comparison.

The statistical continuity of these returns, already broken by the changes consequent on the introduction of a new system, will unfortunately be further affected by the special arrangements made for working the railways during the war, and new difficulties will arise in connection with the returns for 1914 and 1915.

ANNEX II.

Statement as to Railways presented by the Ministry of Transport.

a) *Relations between the Government and the Companies.*

In a letter addressed to the Railway Companies by Mr. Runciman, then President of the Board of Trade, on September 5th, 1916, it is stated that " the Government undertakes to extend the period of guarantee of net receipts to two years after the termination of the war."

These agreements were supplemented by several further arrangements on other points made by successive Governments during the war.

On the cessation of hostilities at the end of 1918, the Government were not free simply to hand back the railways to their owners, since they were bound by the undertakings of their predecessors to extend the period of the guarantee of pre-war net receipts for two years after the termination of the war. The financial position to be faced was serious. Successive increases in wages throughout the country, and in railwaymen's wages in particular, and in the cost of material had brought railway expenditure to a level which involved a heavy burden on the exchequer to meet the guarantee of net receipts.

The loss in working in respect of the financial year 1919-1920 was estimated, on the formation of the Ministry of Transport, at £ 45,000,000, after credit has been given for all Government traffic, apart from certain disturbing factors and the possibility of an increase in freight rates. The actual deficiency for the financial year 1919-1920 is over 40½ millions, and this in spite of approximately 9 millions from increase of freight rates.

The shortage of labour and material during the war, the work undertaken by the railway companies in manufacturing for war purposes, and the need for keeping expenditure down to the minimum compatible with safety had resulted in the accumulation of heavy arrears of maintenance and renewals, both as to permanent way and to rolling stock. These it was essential to make good, and under the agreement, the expenses, inflated by high post-war costs, would fall upon the Government. The Railway Companies were also in arrear on their capital expenditure, and it was essential to embark upon such expenditure in order to meet the pressing needs of development and the restoration of the trade of the country. On this expenditure the companies under the agreements were entitled to claim interest from the Government.

It was further obvious that a drastic revision of rates and charges on goods would be required to restore financial equilibrum.

The Government, therefore, found itself under the necessity of setting up some machinery both for exercising a scrutiny of railway expenditure and for devising some means of increasing railway revenue.

During the war the system of audit of the railway companies' claims for compensation under the railway agreement had consisted in a mutual investigation of the accounts of the various companies by other railways' accountants working under the instructions of the Railway Executive Committee. Points of difficulty were considered by an Accountants' Sub-Committee, and, if necessary, referred to a Committee of General Managers and Accountants' Sub-Committee, and thereafter to the Government Auditors, Sir A. Wyon and Sir Wm. Plender. This system was adopted during the war but it was obvious that with a return to peace Parliament would insist upon some closer departmental check upon the very serious expenditure and liabilities which fell upon public funds.

The necessity for the continuance of control and the Government guarantee was, however, only part of the problem of the railways. The question of wages had remained in an unsatisfactory state during the war, and a revision both of the scales and of the methods by which wage questions could be settled was overdue ; the drain upon the railways during the war and the disturbance of the normal flow of traffic made an immediate return to ordinary competitive working impossible and some continuance of joint working for traffic purposes was necessary ; the rise in the cost of transportation made the consideration of all possible future economies essential in order that the trade of the country should be assisted by transportation facilities at the lowest possible cost. It was to meet these problems that the Ministry of Transport was created, and the following notes deal with the steps which are being taken.

b) *Finance.*

The Government guarantee which was to continue for two years after the termination of the war was limited to a period of two years from August 15th, 1919, and under the Act administrative machinery has been created to bring under close review the expenditure of public money for which the Minister is responsible.

Since the amount due from public funds depends upon the earnings of the railways, the Minister is directly concerned in the administration of the companies. To safeguard the exchequer, while leaving the Companies discretion in directing their own financial policy, constitutes a problem of administration which the Ministry is working out in close consultation with the Companies.

As regards the investigation and audit of the compensation claims, it has been deemed necessary to retain the expert assistance of the railway accountants, but to associate the Ministry's accountants closely with hem in their investigations and in their discussions. All accounts are still certified by the Government's accountants, but difficult points are only decided after consultation with the Ministry and subject to Treasury approval. This involves the examination of a gross annual expenditure at the rate of, approximately, £ 200,000,000 per annum. The necessary

staff of expert railway accountants has been appointed in connection with these duties.

All proposed capital expenditure of the Railway Companies is most closely examined by the Engineering, Traffic, Finance and other Departments of the Ministry and submitted to the Treasury before authority to claim interest from the Government is given. In the course of this examination, the technical departments are able to suggest alterations and improvements with a view to reducing expenditure, in which direction important results have been achieved. The Technical Departments are able to guide development in the right direction by levelling up to the best practice, and to ensure that no opportunity for standardisation is lost. This is of particular importance in connection with the many proposals for electrification now being received, to deal with which a special expert committee has been set up.

Arrangements are in hand for important revenue expenditure to be submitted for examination, so that here again no opportunity of standardisation or economy may be lost.

The allocation of expenditure between capital and revenue is a point to which special attention is paid in view of its important financial bearing on the liabilities of the Government, and before any claim is passed the accountants are required to satisfy themselves that the proposed division is fully justified. It will be appreciated that as any deficit on revenue account is made up by the Government the whole cost of works charged to revenue is a potential Government liability, whereas on capital expenditure the liability is limited to interest on expenditure during the continuance of control.

The best means of speedily increasing railway revenue presented a formidable problem which at once engaged the attention of the new Ministry. Unless ransportation by rail was to continue to be subsidised by the general taxpayer to the extent of roughly £ 50,000,000 a year, it was a matter of the greatest urgency to bring into effect a drastic revision in railway rates and charges. Under the law prior to the passing of the Ministry of Transport Act statutory maxima were imposed for all rates, and even within these maxima increases were subject to proceedings before the Railway and Canal Commission. The legality of an increase of 4 per cent, in goods rates brought into operation in July, 1913, was contested and formed the subject of litigation which in one case has only been determined by a decision of the Railway and Canal Commissioners in March, 1920.

Whether the object was to carry out an interim revision on some arbitrary basis or to make a systematic revision of the existing complicated system of rates and a classification of commodities, some new machinery was obviously essential. This was foreseen in the Ministry of Transport Act, which provided for the establishment of a Rates Advisory Committee fully representative of all interests, whose advice the Minister was bound to seek before himself determining upon any revision of rates. On the formation of the Ministry the necessary staff to deal with rates questions was formed and the personnel of the Committee was selected. The Committee was established in October and was at once asked to advise upon means

of raising an additional revenue of £ 50,000,000 a year from rates and charges on goods traffic. Their report was adopted by the Minister, and the increased rates recommended took effect as from January 15th, 1920, and it is hoped that, *apart from the deferred liabilities under the agreements*, the Railway Companies will be able to meet their operating expenses and earn net receipts on the basis of 1913, thus ceasing to be a direct charge upon the taxpayer of the country.

c) *Rates.*

Having completed their enquiry into the temporary increase of rates necessary to restore the financial equilibrium of the railways, the Rates Advisory Committee are now embarking upon the larger and more important question of a throughout and scientific revision of the basis of railway rates and charges. Such a revision is overdue both in the interests of the traders and the railways.

The present Parliamentary classification of goods for the purpose of conveyance charges is at least 30 years old, and although an endeavour is made to keep the working classification up to date, there are, undoubtedly, certain anomalies owing to changed conditions of trade, new uses of materials, etc.

In originally determining the class, it is evident that the value of the goods was largely taken into consideration, and although this should probably enter into the question, it is for consideration whether more weight should not be given to the cost of the service and the conditions under which the traffic is conveyed as to quantity, bulk, regularity of flow, method of packing, etc.

Class rates have been provided for the various classes on a more or less uniform scale throughout the country, but not more than 25 per cent. of the total business is carried at these class rates, the remainder being carried at what are known as " exceptional " rates, which are lower than the class rates. These exceptional rates are really specific rates for a certain commodity between a pair of stations (sometimes for specific quantities), and in framing them a variety of considerations have been taken into account, such as the risk of loss or damage, the method of packing, the quantities in which the commodity moves, the regularity of forwarding, water, road, and foreign competition, etc.

The general result has been that a most complex system of varying rates has been built up, there being probably hundreds of millions of different rates on the railway companies' books, with inevitable anomalies.

At all recent enquiries into railway matters there has been considerable agitation on the part of the traders to have the cost of cartage eliminated from the rates. There are also objections to the present practice from the railway companies' point of view, and these have been particularly emphasised in recent years owing to the fact that the cost of cartage has increased out of all relation to other railway costs, and the Companies were unable to adjust these, as the charge for the service was included in the rate, and any alteration would have meant adopting the cumbersome process

of advertising and, if necessary, justifying an increase of rates under the provisions of the Railway and Canal Traffic Act of 1894.

Other anomalies arise from different causes, and it will be evident that a re-classification and simplification is most desirable.

The Rates Advisory Committee propose dividing their enquiry into three stages. First, they will consider the general principles that should be adopted as the future basis of rates and charges; secondly, if they favour the maintenance of a classification of goods, they will consider how the various commodities shall be classified; and lastly, the question of the appropriate scale of charges to be applied to the various groups.

To assist them in their labours a questionnaire on the general principles has been addressed to the Association of Chambers of Commerce, the Federation of British Industries, the Mining Association of Great Britain, the Central Chamber of Agriculture, the Mansion House Association on Railway and Canal Traffic, and the Railway Companies' Association. When the replies of these various bodies have been received it is proposed to make their suggestions known so that other Trade Associations and traders may have an opportunity of making any representations they may wish to the Committee.

d) *Statistics.*

In order to economise labour during the war the Railway Companies found it necessary to suspend a considerable amount of the statistical information which they normally maintained.

British Railway Statistics were deficient in many important respects before the War, and the restoration and extension of statistics was an essential preliminary to securing economy in operation and construction and to the systematic revision of rates.

Without adequate statistics it would be impossible to make the best practice the standard for all companies or to secure the maximum degree of standardisation in all railway equipment, including permanent way, rolling stock, signalling and electrical working. The development of electrification on standard lines is a matter of special importance.

The necessary organisation was accordingly set up and arrangements were made with the full co-operation of the Railway Companies to institute for each railway system as many of the new returns as practicable from the beginning of January, 1920, including ton-mile statistics (for coal and coke, for other minerals, and for general merchandise separately), tons and receipts of principal traffic, commodity ton-miles, wagon-miles, train and engine hours and train and engine mileage in greater detail than hitherto. Ton-miles are the only satisfactory measure of the amount of work done by the railways, and the results to be deduced from them in conjunction with other information include the average length of haul, the average train load, the average wagon load and the average density of traffic over each company's system—all of which are important factors in dealing with congestion.

Tons and Receipts of Principal Traffics.—The Railway Companies (Accounts and Returns) Act, 1911, required all companies to show in their annual reports the tonnage of the principal traffics originating on their systems. The choice of the traffics, however, was substantially left to the discretion of the railway companies, and consequently it was not possible to ascertain the total tonnage of any specific commodity—except coal, coke and patent fuel—conveyed on the railways, or the receipts derived therefrom.

The new statistics provide for the tons and receipts of 72 main commodities, and the traffics to be included under each commodity heading have been classified in order to secure uniformity of practice throughout the country.

Commodity Ton-miles.—Ton-miles in respect of each of the commodities are to be compiled for one four-weekly period during the year. The average distance the traffic was conveyed will then be ascertained by dividing the ton-miles by the tons carried, but the information will also be tabulated to show the quantity of traffic conveyed each distance and the receipts therefrom. These figures, used in conjunction with the tons and receipts for the whole year, provide a valuable guide for estimating the probable financial results of any contemplated revision of rates, and so afford a sound commercial basis for the enquiry into the whole system of railway rates and charges which is now being undertaken. In fact, for purposes of comparison, which are now for the first time possible, we shall be working in the light of ascertained facts rather than in the darkness of ignorance.

It will eventually be possible also to see whether the results anticipated have been obtained or what effect the altered rates have actually had on a particular class of traffic.

Wagon-miles.—Wagon-miles afford a good index of the use made of the wagon stock available, as by dividing the wagon miles by the stock of wagons, the average miles run per wagon is ascertained. The average load per wagon, hitherto unascertainable, can also be deduced and, in addition, the average number of wagons on each train can be ascertained by dividing wagon miles by train miles. Arrangements have been made to obtain loaded and empty wagon miles separately. The relation between these two factors is an index of unremunerative mileage. Wagon miles per train engine hour are a guide whether freight traffic is being worked in an economical manner from a locomotive point of view.

Engine Hours.—These statistics show the number of hours engines were employed respectively on Coaching Trains, Freight Trains Shunting, etc., and are compiled to correspond with the Train Mileage Statistics. Many useful factors can be deduced from Train Hours when used in conjunction with other statistical units. For example, Ton Miles, Train Miles and Wagon Miles per engine hour are all useful indices of the economic use of locomotive stock. The need of Engine Hour Statistics had already been recognised and recently adopted on a number of the principal Railways,

but a more complete analysis of the figures has now been put into operation and the particulars will be obtained in respect of all Railways.

Engine Mileage. The information available in respect of Train Miles has previously been confined to "Coaching", "Freight", "Shunting", and "Other Miles". The new statistics provide for the separation of the mileage incurred on week-days and Sundays, and for a further analysis of "Other Miles" to show separately "Assisting Miles required", "Assisting Miles not required (*i.e.*, Engines working home on trains, etc.), "Departmental Miles", and "Light Miles".

Apart from Engine Mileage none of the statistics now being rendered on a four weekly basis has been generally available, and none of them has been compiled except in isolated cases.

The statistics relating to the Principal Railways will be summarised by the Ministry of Transport and circulated to the General Managers of the Railway Companies concerned at the end of each four-weekly period, thus making the experience of each available to all. The principal units of efficiency will be made public, so that those interested in railway economics may intelligently follow the results obtained.

Other phases of Railway Working are being covered in a similar manner.

e) *Labour.*

Parallel with the financial difficulties was the problem of wages of railway servants, which had remained unsettled throughout the whole war and up to the establishment of the Ministry of Transport. Some general rise in wages was admittedly due at the beginning of the war, and the re-adjustments had only been postponed by granting a series of war bonuses, which by 1919 had reached a total of 33s. per week per man. Before, however, any settlement could be reached on a national basis, the numerous and intricate differences between the scales in force on the various Companies and in various parts of the country had to be cleared up. For instance, in Manchester the carters employed by seven different Railway Companies in the same area were in receipt of seven different rates of wages, and throughout all graduations of railway labour, differences existed which made general adjustments impossible.

The difficulties in negotiation culminating in the railway strike delayed the completion of a settlement, but the agreement finally reached will, it is hoped, form a permanent and lasting basis. Not only have all the principles regarding standardisation of wages been settled, but machinery has been devised which will enable any adjustments which may be required in the future in railway wages to be made apart from the ordinary administrative work of the Department.

The scheme consists of a Central Wages Board of five representatives of the Companies and five representatives of the men, to whom disputes will be referred. Should they be unable to reach an agreement reference will be made from them to the National Wages Board, consisting of four

Railway Managers, four Railway Workers, and four users of railways (one nominated by the Parliamentary Committee of the Trades Union Congress, one by the Co-operative Union, one by the Federation of British Industries, and one by the Associated Chambers of Commerce), with an independent Chairman appointed by the Government. It is agreed that no strike shall take place until one month after a reference has been made from the Central to the National Wages Board. Local machinery is also to be set up to deal with local matters.

This separation of discussions of wages from Departmental work and from the political chief of the Department should prove of the greatest value in the future, and a settlement of railway wages will form part of the general question of wage adjustments in essential occupations. In placing wage arrangements on a permanent basis the Ministry of Transport has cleared the way to a re-establishment of normal working conditions.

f) *Traffic Congestion.*

The congestion of the railways, involving, as it does, unaccustomed delays to traders, naturally engages public attention, but the difficulties with which the railways are steadily and successfully coping are still little appreciated. With a decreased number of locomotives and wagons in traffic, and with a shorter working day, the railways are actually coping with a larger volume of work than in 1913.

The total number of passengers carried by the 16 principal Railway Companies (exclusive of season ticket holders) during the year 1919 was 974,259,966 ; an increase of 156,278,127 passengers, or 19,1 per cent. as compared with the year 1913.

The number of season ticket holders, equated to annual tickets, conveyed during the year 1919 was 735,172 ; an increase of 245,692, or 50.2 per cent. as compared with the year 1913. These season ticket holders are responsible for from 100,000,000 to 150,000,000 additional journeys, so that the annual carriage of passengers is nearly 300,000,000 more than in 1913.

Freight Revenue on the Controlled Railways during the past year was nearly £ 5,000,000, or 7 per cent. more than in 1913, on the basis of the same charges and excluding Government traffic amounting to £ 21,000,000, of which probably about one-half was freight traffic.

The total freight receipts were therefore, approximately, 20 per cent. in excess of 1913. This indicates that, even after allowing for a change in the class of goods carried, the average distance traffic was conveyed has been increased, thus involving a greater tax upon the carrying capacity. To cope with this traffic the railways were, for the whole of 1919, working with a shortage of serviceable locomotives and wagons.

The stock of locomotives available for traffic on the 16 principal railways on the 30th June, 1919, was 17,743 ; a decrease of 1,186 as compared with the number available at the end of 1913 ; this decrease was reduced to 293 locomotives on 31st December, 1919, brought about by a deduction of 447 locomotives from the number under or awaiting repair,

429 locomotives lent by the Government, and 17 added to the Companies' stock.

Since the 31st December 22 additional Government locomotives have been hired to the railways, who are making strenuous efforts to reduce the number under and awaiting repair as quickly as possible, and to increase the rate of construction of new locomotives.

These 16 principal Companies in Great Britain had actually in traffic on the 30th June, 1919, 650,606 wagons, or 45,315 less than on the 31st December, 1913. By the 30th September this deficiency had been reduced to 43,486, and by the 31st December to 19,391. Considerable pressure had been put upon the railways to increase the construction of new wagons; on the 30th June, 1919, there were 17,141 wagons on order at Railway Companies' shops and 3,995 on order from outside firms, a total of 21,136. On 31st December these orders had increased to 21,306 at railway workshops and 11,542 from outside firms, making the total 32,848 wagons on order, or an increase of 11,712 wagons since June. During the present year additional orders have been authorised for the construction of 7,277 wagons by outside firms.

During the three months ended 30th November last the average number of new wagons put into traffic monthly was 888 (148 from outside firms) and during the last three months the average number has been 1,668 (277 from outside firms) a month, or nearly double.

Far more important than the actual wagon shortage have been the delays caused by the alteration in working hours, both on the railways and in other trades. Whereas before the war the working day of 11½ hours was available on railways for unloading wagons there is now the universal 8-hour day. The men are naturally reluctant to impair the advantages which they have gained by the establishment of this principle by any frequent resort to overtime.

During December 365,533 wagons days over and above the "free time" for loading and unloading were lost.

Equally important as contributing to the traffic congestion is the alteration in the flow of traffic. This change, which is common in the case of many commodities, is due to a variety of causes, the chief being the increased cost of sea traffic, which has thrown the coastal trade on to the ailways.

The position is best illustrated by the case of coal. Before the war a very considerable proportion of Northumberland, Durham and South Wales coal was exported, and the country relied largely for its internal consumption upon Nottingham, Derbyshire and Warwickshire coalfields. Owing to the decrease in output from these fields much of the coal previously exported is now diverted to home consumption to make up the shortage. At the present time coal from Northumberland and Durham is being conveyed by rail to South London, and Monmouthshire coal is being carried across country to the Eastern Countries. During 1919 about two million tons of coal were conveyed by rail to London in excess of the amounts carried pre-war.

Another instance in this change of flow of traffic is afforded by the

ports. Owing to the greater excess of imports over exports in 1919 as compared with 1913 the traffic by rail from the ports is in excess of the traffic to the ports. This necessitates a large number of empty trucks being worked into the ports with a corresponding waste in loss of carrying capacity The tonnage (excluding coal and coke) carried *from* Liverpool by rail in 1919 exceeded that in 1913 by 880,000 tons, or 26.26 per cent., necessitating the sending of about 176,000 additional empty wagons (or about 600 per working day) into Liverpool to move the increased import traffic.

The tonnage forwarded and received by rail (again excluding coal and coke) per the principal London Docks (Poplar, Victoria and Albert, Millwall, Tilbury, and East and West India Docks) during 1919 shows an increase of 120,000 tons over 1913. The tonnage received was greater by 50,000 tons, or 5.7 per cent., and the tonnage forwarded was up by 70,000 tons, or 5.0 per cent. This increase, on the basis of 5 tons per wagon, involved the handling of an average of 80 additional loaded wagons per working day as compared with the year 1913. The figures for these ports were taken out specially as being the greatest in the Kingdom and as two in which the greatest blame for congestion has been cast against the railway companies.

Congestion arising from many different causes is not susceptible of relief by any single remedy, and the Ministry has already put into force various general measures which are assisting the companies to continue and expedite the improvement already manifest.

As regards passenger traffic it is neither desirable nor possible to reduce the amount of traffic, which is one symptom of the increased spending power of many classes of the community. In view, however, of the situation the Minister concurs in the view of the companies that any restoration of special facilities such as week-end tickets or excursions cannot at present be re-introduced, since goods traffic must have preference until the congestion is relieved.

As regards the delays due to the detention of wagons, the Minister referred the matter to the Rates Advisory Committee, and on their advice raised the charges. The results of this change are already most satisfactory since the detention of wagons in February showed a decrease of 42 per cent. as compared with December, a saving of over 150,000 wagon days—a most remarkable result.

Assistance has already been given to the companies in unloading wagons by the provision of a large number of Government lorries, while it is hoped that the new rates without further increase will make it possible for traders to undertake their own cartage and thus decrease the effect of the 8-hour day in congesting the terminals.

To assist in the locomotive shortage all the locomotives in France were brought back as quickly as possible and distributed to the railways, and similarly in the case of wagons; in spite of great difficulties in the war area the return has been expedited, so that out of 29,376 railway-owned wagons in France at the Armistice, 16,868 have now been returned, and the remainder are being brought back at a rate of 460 per week.

In order to assist in the re-establishment of normal flow of traffic the subsidy on coastwise traffic has been continued, but until freights by sea fall to a level and until the normal trade balance of the country is restored traffic cannot return to its channels.

g) *Development.*

Attention is naturally concentrated at the moment on relieving the immediate congestion. It is the duty of the Ministry of Transport, however, to prepare a future policy which by progressive economies will decrease the burden of increased cost of transportation. A return to unlimited competition between competitive lines would be wasteful, and even before the war by pooling arrangements the various systems were eliminating direct competition between point and point.

In this connection it must be remembered that many facilities suspended during the war have not yet been restored, and the Development Department is constantly considering the public need for the reinstatement of such lines and services as were closed or curtailed during the war, and which, owing to financial considerations or scarcity of material, have not yet been restored. Many of these facilities served agricultural districts which, though productive before the war, have largely increased in productivity owing to the stimulus given to agriculture by the needs of the nation in the last five years. Apart from the actual traffic which would accrue from agriculture, there, is the further consideration that the facilities have in many cases led to a population settling down in the vicinity.

All such facilities cannot be reinstated at once, but it is the duty of the Ministry, acting in consultation with other Departments of State, to secure the restoration of these facilities in cases where they are urgently required in the interests of agriculture, industry, or public convenience, even though the particular branch in itself may not give immediate prospect of being a remunerative undertaking.

It is obvious that both agriculture and industry are likely to make increasing demands on the branch lines, and in many cases it will not be sufficient only to re-open branches which have been closed, but it will be necessary to extend them into new districts to serve new industries and new settlements of population.

In order to prevent overcrowding in the great cities, with consequent congestion of the traffic, the Ministry of Transport must take a far-sighted view of the problem of the urban worker, and in conjunction with the Ministry of Health it will be its duty to encourage self-contained industrial centres away from the large congested areas of our present large towns, primarily in areas where existing transportation facilities are able, without additional capital expenditure, to deal with the traffic. Although much can be done by the improvement of road services, the heavy passenger and goods traffic of a large industrial centre requires primarily railway facilities, which, however, should only be provided where it is certain hat no alternative site already in possession of the necessary facilities exists.

h) *Standardisation.*

Great advantages can be secured by the standardisation of rolling stock and of loading gauge. At present there is no uniform design either for wagons or coaches, but each railway builds its rolling stock to meet its own particular requirements and in accordance with its traditions, with the result that no universal standardisation of component parts has been possible. This diversity causes very great inconvenience in effecting repairs of wagons which necessarily travel over lines distant from their home system ; it is obviously wasteful and often results in long delays. The trouble is accentuated by the privately-owned wagons. These are bound to conform to general specifications prepared by the Railway Clearing House, but can, and do, vary greatly in their component parts, which ought to be interchangeable in the interests of railways and traders alike. It is obviously impossible for the railways to hold stocks of the parts suitable to all types of private wagons.

In considering the production of wagons too great stress has possibly been laid on the effect of the recent shortening of hours, and too little attention has been paid to improving methods of manufacture, which should be introduced to assist in making good any loss of output. Standardisation by reducing the number of types to be manufactured will help very largely, but following on the heels of standardisation must come the re-organisation and possible re-grouping of workshops.

In the case of passenger coaches the absence of standardisation precludes the use of some particularly modern and up-to-date stock in through running, owing to the diversity of the loading gauge of different systems. If the loading gauge could be increased wagons of a higher capacity could be employed, and it is universally recognised that for certain classes of traffic this would prove economical. Investigations are required as to the cost of such an improvement compared with the possible resulting economies ; for it would involve an increase, in the carrying capacity of many existing bridges which could not bear the locomotives required for the heavier trains. Indeed, at the present time this very difficulty limits the use of locomotives built by the Government for use in the war areas.

For some time committees of the railways have been considering the questions of the standardisation of rolling stock and increase of the permissible loading gauge, but the war interrupted progress. Enquiries have been resumed and are in a sufficiently advanced stage to enable the commencement of provisional estimates as to the capital cost involved in reconstruction to suit the increased gauge. But before any conclusions can be reached, there must be a great amount of further research involving the highest technical engineering skill.

The best opportunity for pressing on with this investigation is the period of control, during which a considerable degree of unified working among the railways must of necessity continue.

i) Electrification.

The policy of the Ministry with regard to the electrification of railways is to encourage the different railway companies to spend their own capital on electrification schemes wherever a well-considered scheme can be produced, more especially with regard to suburban traffic. This has proved in different parts of this country to be eminently suitable for electrification, and creates additional traffic with greater rapidity, so that the return upon the capital expended is improved.

There are, however, important points of principle to be settled so that the various schemes which have been sent forward to the Ministry, both for suburban and for main-line railways, shall be so arranged as to facilitate the continuity of traffic and permit the rolling-stock of one company to go over the lines of all others. It is fortunate that up to the present very little has been done in this country which would interfere with the possibility of through running, as the necessary alterations, where differences do exist, can be made quite easily.

A Committee of well-known technical engineers and others is at present sitting to consider the technical points in connection with the interchange of electric rolling stock and to advise on any questions which may arise in respect of through running.

The importance of early electrification in and about our great towns becomes much greater when all the housing schemes which are projected are taken into consideration, as it seems necessary that if any new great house-building programme is devised for working classes, facilities should also be created for taking them to and from their work in the shortest possible time, and these facilities can in many cases be given on existing lines of railway, provided that they are electrified and that some system is evolved of co-operation between the different Companies who may be interested in the local lines in the immediate vicinity of the large city.

Annex III

Statement presented to Parliament as to the Financial Situation of British Railways during the period of the Government Control of Railways (1914-1918) as compared with the situation in 1913.

	Year 1913	Period of Government Control.				
		Period 5th August to 31st Dec., 1914.	Year 1915.	Year 1916.	Year 1917.	Year 1918.
	£	£	£	£	£	£
Receipts—						
Passenger Train Traffic	54,096,074	19,091,103	52,576,836	54,953,831	59,710,183	69,819,265
Goods Train Traffic	68,551,503	26,861,560	71,754,353	74,809,650	74,310,568	72,396,409
Estimated Amounts which would have been received for Government Traffic if charged for at pre-war authorised rates	—	3,500,000	10,279,104	20,649,126	35,698,554	41,917,024
Total	122,647,577	49,452,663	134,610,293	150,412,607	169,719,305	184,132,698
Less—Expenses of Collection and Delivery	5,092,670	1,950,817	5,341,872	5,711,354	6,571,736	7,845,927
Total Traffic Revenue Earned	117,554,907	47,501,846	129,268,421	144,701,253	163,147,569	176,286,771
Mileage, Demurrage and Wagon Hire	150,679	1,719	9,844	9,115	4,958	—
Miscellaneous	995,349	414,623	1,079,779	1,160,717	1,126,903	1,297,550
Total Revenue Earned	118,700,935	47,918,188	130,358,044	145,871,085	164,279,430	177,584,321

EXPENDITURE—						
Maintenance and Renewal of Way and Works	11,818,310	4,623,713	11,598,234	11,924,459	13,265,610	16,145,166
Maintenance and Renewal of Way and Works; Arrears to be carried out	—	800,264	2,984,757	5,055,609	6,282,179	6,485,228
Maintenance and Renewal of Rolling Stock	13,257,617	5,493,599	13,741,171	15,211,621	17,620,905	21,888,238
Maintenance and Renewal of Rolling Stock; Arrears to be carried out	—	315,446	2,476,753	3,202,694	3,667,993	3,327,049
Locomotive Running Expenses	17,130,661	6,918,659	19,195,992	22,604,085	24,742,848	29,973,666
Traffic Expenses	23,260,765	9,405,579	24,739,143	27,397,967	32,772,823	41,621,685
General Charges	2,598,209	1,094,918	2,635,550	2,692,066	2,885,972	3,140,849
Law Charges and Parliamentary Expenses	226,346	89,039	197,250	186,802	176,517	185,812
Compensation (Accidents and Losses)	1,158,451	293,760	1,176,858	1,250,914	1,275,191	1,456,430
Rates, Taxes, &c.	4,705,264	2,077,111	5,064,047	4,839,699	4,880,778	5,273,155
Government Duty	284,361	81,101	255,341	293,174	—	—
Payments under National Insurance Act, 1911	398,870	155,192	363,652	354,126	362,339	355,496
Running Powers	*108,699*	*811*	3,274	3,806	*1,209*	*1,665*
Mileage, Demurrage and Wagon Hire	239,916	28,126	51,136	45,961	63,942	165,745
Miscellaneous	157,139	74,722	190,639	207,596	252,789	340,392
Allowances to dependants of men serving with H.M. Forces	—	141,683	333,225	477,425	623,395	711,009
Watching, Patrolling, &c.	—	190,731	21,240	8,702	5,860	7,127
Payments to Staff—Armistice Day	—	—	—	—	—	250,913
TOTAL EXPENDITURE	75,127,210	31,782,832	85,028,262	95,756,706	108,877,932	131,326,295
BALANCE OF REVENUE EARNED OVER EXPENDITURE	43,573,725	16,135,356	45,329,782	50,114,379	55,401,498	46,258,026

Remarks on Preceding Table.

Compensation payable to Railway Companies.—The sum receivable per annum by the Railway Companies as compensation during the period of Government Control is limited to the Net Receipts of the year 1913 with the addition of 4 per cent. upon Capital Expenditure brought into use since the beginning of that year.

Audit.—The accounts from which the figures are taken have been audited on behalf of the Government up to the close of 1916 and the greater part of them for 1917. The remainder of the figures are taken either from accounts in process of audit or from preliminary returns.

Subsidiary Undertakings.—The value of the services rendered without charge to His Majesty's Government by means of Steamboats, Docks, Canals, &c., is not ascertainable, and the results of these subsidiary undertakings are accordingly omitted. It is not likely, that, if available, they would materially affect the figures.

Government Traffic.—This is the value of the traffic carried for the Government without charge under the compensation arrangements, calculated at pre-war authorised rates. The figure for 1914 is estimated.

Wages.—The Wages included in the several heads of expenditure are taken at the actual rates paid, rising in 1918 from 21*s.* per week to 33*s.* above the rates in force in 1913. If the rates paid at the close of 1918 had been in force throughout the year, it is estimated than an additional cost of about £10,000,000 would have been incurred.

Arrears of Maintenance.—The cost of making good maintenance in arrear is calculated on the basis of the expenditure in 1913 increased by 75 per cent. to allow for higher rates of wages and prices of materials.

Extra Wear and Tear.—The Net Receipts are subject to provision for extra Wear and Tear arising from additional Traffic carried. The cost of eventually making good this Wear and Tear must be considerable, but cannot be estimated at present with any degree of accuracy. A calculation based on the ratio of Maintenance outlay to Receipts in 1913, after allowing for increased wages and cost of materials, results in a figure of about £40,000,000 during the period of control. There are factors affecting this estimate which tend to reduce it ; but whatever their effect, there is no doubt that a large allowance for this contingency needs to be provided for.

Annex IV

Statement made to certain Members of Parliament with regard to Questions of Transport by Sir Eric Geddes.

Gentlemen,

I wish to thank you for coming to this meeting and thus giving me an opportunity of making a statement on the railway question and, more particularly, on the freight side of it. I have not prepared anything on the passenger side, which is also of great importance and of great interest, but your response to my invitation has so encouraged me that I may at a later date ask you to see me about the passenger side. I think it will be convenient if I make my statement first on the freight side of the transportation problem dealing with congestion and the present alleged wagon shortage. The causes of congestion to-day are numerous, but as I think I will show before I sit down, the shortage of wagons, that is to say, the actual shortage of wagons, is not the principal cause of the difficulty. I would like you to examine the question, not in a sensational way, but, as the House of Commons always does when it settles down to a thing, in a business-like way. I think that probably one of the greatest dangers of great State control or nationalisation of railways would be that we would be inclined to legislate in their administration in a sensational and panicky way. I am trying not to do that.

Control of Railways.

First of all I would like to explain to the meeting how the management of railways, which has been called control, has operated during the war and how it will operate now, or rather at the end of the year. During the war, the railways were under the control of the Government, but, in fact, they were self controlled, because the machinery through which the Government exercised its power was placed in the hands of twelve General Managers of the Companies, and I think that Sir Herbert Walker, who was Chairman of that Executive Committee, will bear me out when I say that, practically during the war, they never received any direction as to the working of the railways. They gave directions under the powers delegated to them. They exercised three quite distinct functions. The first of those was Government control, which in its exercise really came to this, that twelve of the principal General Managers were given powers to give instructions, not only to their own Companies, which enabled more effective and prompt steps to be taken to meet the situation, but they never really got any direction from the Board of Trade in these matters. The second of their duties was to exercise the functions

of a watch-dog over finance for the Government. By sending out their accountants, they audited the accounts of each other so far as the Government was concerned. That was done at a great saving of expense to the Government, and very ably and accurately done. Then they acted in another capacity, as negotiators between the railway companies and the Government. They acted as managers of their own systems and gave directions to the smaller systems. They were also a bureau of information for all questions of railway traffic relating to the war, running from the biggest questions, such as the conveyance of munitions and other heavy traffic, down to the taking of sleeping-car berths, or arranging for them.

From 1st January the control, in so far as it exists, will be exercised by the Ministry of Transport, and the financial check which has been so ably and conscientiously carried out by the companies on each other on behalf of the Government during the war, will naturally, and I think necessarily, be now to a greater extent supervised by the Ministry of Transport in its finance office. It is only fair to the railways that they should be relieved of that great responsibility. Then the negotiations between the railways and the Government as to the future or as to the present financial arrangements will be conducted between the Ministry and a Committee of the Railway Companies Association. That was a function which the General Managers performed at the outbreak of war and during the war, and the Railway Companies Association are now taking it in their hands. The Association will work through a Committee. The third item, which was the management of the systems, goes back to the General Managers through their old railway machinery. They worked together and managed, to a certain extent, together, during the war, and now that body which did the joint management ceases to exist about 1st January, and their functions as a Railway Enquiry Bureau will also cease, so that really instead of, as some people think, there being greater increased detailed control, the arrangement from 1st January will work out that there shall be a large de-control of a centralised kind, and the railways will, to a greater extent at any rate than during the war, be conducted under their own management, and I hope that all my honourable friends will assist both me and the railways in this connection.

Wagons.

One honourable member came to see me the other day with the Secretary of a very important Chamber of Commerce about the shortage of wagons in a certain district. I asked him if the complaint had been made to the railway companies. He said, " No ; we understood that the work was done now from Whitehall. " That would be quite impossible, and it would be madness to try to do it. I am, of course, always glad to enquire into points when they are put to me or to answer questions which are raised, but those are really matters which, as under the old management of the railways, are best dealt with under the management as it will exist after 1st January, and in the first case by the trader communicating direct to the railway concerned. I think that will be most effective, and if you could influence your constituents in that direction it would

certainly ease the work of the railways in having to answer questions over the telephone or by telegram from here. At the same time, I may say, I am glad to make those enquiries for honourable members at any time.

The powers which have been bestowed by Parliament on the Ministry of Transport of course remain, but, in so far as I can at present see, there is no immediate likelihood of those powers being exercised except in so far as it is necessary to safeguard the financial transactions as between the railways and the State. Honourable members will readily understand that as at the present time the State is paying, in fact, the revenue expenditure of railways, it is very important, from the point of view of the State, and satisfactory to the railway companies themselves, that the State as well as the railway companies should carefully scrutinise whether the expenditure is capital or revenue expenditure. If it is revenue expenditure it falls to be paid by the State under the guarantee. If it is capital expenditure, it falls to be paid by the companies, and, as we all know, on some occasions it is difficult to draw the line. It is most important that we should extend during the period of control scrutiny of the accounts which the railway companies compiled, and upon which they get their guarantee, or which affect the State's liability to pay the guarantee. Again, under the abnormal conditions under which we now are, the State must, during the period of control, take a very large part in wages questions and in rates and fares. As regards the wages question, when the present negotiations are over, and I hope they will be over very soon, we will have provided machinery which I explained in the House the other day, and which I trust will take the settlement of railway wages and conditions out of the direct hands of the Minister. There will be a body composed of three parties with an independent chairman. You will have the railways on one side, the men on the other, with the users as the third party, and they will pronounce upon questions of railway wages and, as I say and hope, take that rather difficult task out of the hands of the Parliamentary Minister, which I think is quite the wrong place for such matters to be dealt with.

Having explained that, I would like to pass to the wagon position, which undoubtedly is the point in the question of the congestion on the railways which has caused most interest. At the present time, the United Kingdom, that is, England, Scotland, Wales and Ireland, has railway-owned wagons 1,000 in excess of what they owned in 1914—that is, the ownership for the United Kingdom. In Great Britain alone, leaving out Ireland now, the actual available rolling stock, that is to say, the rolling stock in traffic, is 5 per cent. down; that is, the whole of the United Kingdom to-day owns 1,000 more railway-owned wagons than in 1914, and, incidentally, the carrying capacity will be actually higher than is represented by 1,000 in numbers, because new wagons are replacing wagons of lower capacity. Great Britain itself, as opposed to the United Kingdom, is 5 per cent. down, and the traffic passing to-day in tonnage in Great Britain is 14 per cent. down.

Mr. Houston: Can you give us the total numbers ?

Sir E. Geddes: I have not got them at the moment, but I can let you have them later. Roughly speaking, there are 700,000 railway-owned wagons, and 5 per cent. down is 35,000, and these are to-day between from 15,000 to 18,000 wagons in France belong- ing to British railways, and there is awaiting repair another 15,000 to 18,000 in excess of the normal number awaiting repair, so that we have there roughly 35,000 wagons out of traffic. The classes vary. It may be asked, why could you carry the heavy war traffic and you have got this shortage of wagons now ? Certain honourable members have brought to my notice cases, to which I shall refer later, of ship-building traffic that is held up. The reason for that is this, that during the war there was very little long traffic and far more short traffic. It was heavy stuff, such as builders' materials, ingots, shells and things of that kind, which could be carried in ordinary wagons. Replacement during the war was therefore very largely in ordinary wagons, while now bolsters and special wagons are more largely required, and that accounts for some of the difficulty where a special class of wagon is wanted.

Apart from the numbers of the wagons, we have got a very abnormal state of affairs in the traffic. Take Welsh coal, for instance. It used to go in Wales mainly from north to south, and now it goes from west to east. In 1917, 61 per cent. of anthracite went for shipment with an average lead of 23 miles, and 39 per cent. went inland. In 1919, 60.5 per cent. went inland with an average lead of 200 miles and 39 per cent. shipment. I got other figures taken out on one railway as an example, and I believe it is a fair example, and they say from their figures that the average length of lead is up 33 per cent., and that is not from the Welsh coalfields. Reports from other railways indicate the same thing, but I have not got the final figures, as it not an easy matter to have them taken out. That increase is largely due to the fact that the coastal tonnage is so much down. You get many other cases, such as Durham and Northumberland coal, which used to be coastwise and now comes to London by rail. That is partly due, as honourable members know, to the fictitiously low railway rate. Railway rates, as we all know, are subsidised rates. As soon as you get those rates up, and no time has been lost, or is being lost, in dealing with that question, you will get a very much easier situation in many ways, as I hope to explain before I sit down. It does not pay even with the limited subsidy which is being given to coastal shipping for shipowners to use their ships in competition with the railway rates. Apart from subsidy the only other possible way I know of, of dealing with the coastal shipping shortage, would have been to take further control of the shipping, but everybody wants to get rid of control, and I know of no other way in which this could have been dealt with. The subsidy, a very limited one, which was put on before I became Minister, was put on in such a way that it would give relief, and it has given great relief, and so that it would not involve a great deal of the tonnage. That subsidy will come to an end as soon as we get the railway rates on to an economic basis. I hope that will be before 15th January. The Committee which was set up under

the authority of the Act has been working assiduously and continuously at it. There is another abnormal feature which has affected the railway situation a great deal, and that is this—owing to finance, owing to difficulties of supplies, owing to uncertainties in business and different reasons, which honourable members will be able to name for themselves, traders are not consigning traffic in the same size as they used. On one railway, which is given to me by the Railway Executive Committee as a reasonable fair sample, the tonnage is down 62,000 tons in one month, or 2 per cent,. and the number of separate consignments is up 550,000, or 24 per cent. more separate consignments. That means a light load, and you cannot get the same work out of your wagon if you are dealing in small parcels like that.

As to the actual wagon shortage, there are 18,000 wagons, roughly, in France—there may be less now—and those are coming back at the rate of 600 per week. The Secretary of State for War has a plan, and I have gone into it carefully with him, of getting that up to 900 per week. They bring them back on the train ferries, running to Richborough. All those wagons need repair, and repairs are rather the bottle-neck, so that a wagon back from France does not mean a wagon in traffic immediately. During the war the building of wagons was very largely stopped.

The capacity in this country belonging to the railway companies for building was 25,000 wagons per year, working single shift. In the first half of this year the railway shops built at the rate of 10,000 wagons per annum, which is not half of 25,000. I do not think it is very wonderful that they did not do more when you think of the conditions that all manufacturers have been going through since the beginning of the year. They have had dislocation due to labour troubles and difficulties in getting material, and what applies to other manufacturers applies just the same to railways. Notwithstanding those difficulties, their output was at the rate of 10,000 per annum, and, apart from that they concentrated on repairs. Obviously, you can improve the present situation better by concentrating on repairs than on building new wagons. Therefore I am very glad there has been a steady and satisfactory improvement in this direction, and as to that I will give the figures later on. Since June orders have been placed for 22,000 more wagons. That includes 5,400 to outside firms, and I will refer later to the point of outside builders. I would like to say these are by no means all the orders railways are ready to place. There are awaiting for outside builders outstanding orders for 5,100, and if we can get them placed no one will be better pleased than the railway companies. The companies have got ample financial reserves to build wagons. There is absolutely no restraint on them as to building. They are being urged, if, indeed, urging is necessary, to build or to get them built. It is undoubtedly to the companies' interest to build now during the period of Government control. There is no financial restraint, and they are not held back by any uncertainty as to what is going to happen. Under the Ministry of Transport Act there is no reason why we should not place very much larger orders for wagons, in so far as the finances between the country and the railway companies are concerned. I wanted to make that clear, because I have seen it stated on

the authority of certain directors that the Ministry had held them back. I can state most definitely it cannot hold them back under the arrangements. What is holding them back is this : the prices that are being asked are enormous.

Sensational and Panicky Action.

Here I wish to remind the meeting of what I said about sensational and panicky action. The prices that are being asked are enormous. Wherever dates are given they are so safeguarded that there is not the least prospect of holding contractors to the date of delivery, or else they say it is impossible to give a date at all. Just to show what these prices are running to—and I wish particularly to make this point clear—a 12-ton wagon to-day is being quoted for uncertain date, and there is no object in getting wagons if you do not know that you are going to get them soon, at from £ 350 to £ 400, which is from £ 100 to £ 150 over the present-day railway price of building the wagon. Even Woolwich Arsenal, which never b uilt wagons before, and which is a State-run factory, with very little room for this class of work, is building that wagon, despite all the disadvantages it is suffering from, for £ 297, as against from £ 360 to £ 395 quoted.

Mr. Houston : Is it pre-war price ?

Sir E. Geddes : The Woolwich price is £ 297 against from £ 360 to £ 395.

Mr. Nelson : Does that include maintenance charges ?

Sir E. Geddes : Yes, all the Woolwich charges include maintenance.

Mr. Nelson : Has Woolwich delivered any ?

Sir E. Geddes : They are a bit held up by the moulders' strike.

Mr. Nelson : How can they tell the cost, then ?

Sir E. Geddes : They have got it nearly completed, and they are able to work out the cost. In order to be quite sure that one has not got unfair figures, I would like to quote these : Here is a railway 16-ton mineral wagon and the price quoted £ 278, and the present-day cost of building it in the railway company's own shops is £ 200. Then a 10-ton wagon, price quoted and orders placed at £ 270, and the present-day railway company's shops cost £ 180. A 20-ton steel wagon, price outside £ 359, and present-day railway cost £ 270. A 20-ton goods brake van, price outside £ 965, present day railway cost £ 680, and the pre-war cost of it was £ 270. Another railway covered goods wagon, for which orders have been placed, £ 302 outside, and railway shops cost £ 255.

General Sir O. Philipps : Can you give us the cost of the 12-ton wagon before the war ?

Sir E. Geddes : I will try and do so later. Another wagon, £ 415 outside price, as against present-day railway cost of £ 335. Another covered wagon

from another firm, £ 328 outside price and railway company costs £ 255. From another wagon-building firm £ 290 quoted, and railway costs £ 255. Another 12-ton open goods wagon, building at Woolwich Arsenal, £ 297, and present-day railway costs £ 225 (£ 242 including all overhead charges), and outside cost £ 360 to £ 395, and the pre-war cost £ 90 (£ 103 including all overhead charges). Another case, railway fish vans £ 1,090 quoted and ordered, and the railway's own cost £ 353. Another outside firm quoted for covered goods vans £ 325, and the present-day cost in the railways' own shops £ 166. A 10-ton standard wagon outside cost £ 283, and railway cost £ 228.

Mr. Terrell: Can you state what is the rate of overhead charges the railways put on their costs, or what is called their cost, because I have seen figures where railway companies simply put on a nominal amount for overhead charges, such as 50 per cent. on labour, or 25 per cent. when their overhead charges properly worked out come to from 100 to 150 per cent. added together ?

Sir E. Geddes: I will endeavour to do so.

Brigadier-General Hickman: What sort of price are they putting on the timber ? Is it pre-war ?

Sir E. Geddes: Replacement value.

Sir E. Jones: Are they different contractors ?

Sir E. Geddes: All different names I have been quoting.

Brigadier-General Hickman: Would it not make a great difference if the railways had enormous stocks of timber, instead of having to buy at present prices ?

Sir E. Geddes: The railways charge replacement values. They are bound to do that, because the Government has to pay for replacement. They would not put this in at a pre-war price in their own interests. Now, gentlemen, the way I look at this question is this. I do not believe when we have got the wagons over from France, and when we have overtaken repairs, and with the improved working of a more unified system of railways as was initiated during the war and will be carried on now, that we are in such desperate straits as that we have got to pay anything like these prices. If we do, we are going to load the railways of the country, which in this sense are not companies' lines, with a charge which the State has got to pay. I do not see why we need consider the position so desperate that we have got to pay prices like those. I am looking at the cost of the wagons ordered, whether railway-shop built or outside built, and the price is enormous. I believe when trade settles down, and it is settling down, and conditions are undoubtedly improving, and when we get all the wagons we own into running,and when we get the other measures of adjustment which I am going to explain later, that we do not require to pay these prices. I have said that we are ready to place orders now for 5,000 more wagons outside, and more on top of that, if we can get them at a rea-

sonable price, with a reasonable chance of delivery, and if any honourable member knows of any wagon works which will take orders.——

Brigadier-General Hickman: What do you call reasonable prices?

Mr. Nelson: Are the railways prepared to compare their cost with that of private companies?

Sir E. Geddes: Most certainly they are prepared.

Mr. Nelson: I should say that the private firms would be only too glad of the opportunity.

Sir E. Geddes: I do not wish to accuse the wagon builders of anything unpatriotic, but the wagon-building trade is getting on very nicely. In October the exports of wagon parts from this country were £387,000, and in November they were £542,000. For the eleven months of this year they have been £2,000,000, so that last month one-fourth of the whole year's export by the wagon-building firms went abroad. That is a good thing; it is good business. It will improve the exchange and bring money into the country. We do not want to stop that, and there would be an outcry if we did. Therefore, I have to ask myself, and I have to put it to the meeting, if on the figures which I have given there is, as I believe there is, a reasonable justification for thinking that we can carry the traffic of this country if we get the whole of the rolling-stock into commission again—and it will come into commission far more quickly than we can build—would I be justified then in paying the very high prices of to-day for a very large number of wagons, when I believe that we can do without them, and would I be justified in coming to the House and asking for power to control or interfere with the ordinary development of the trade of the wagon-building firms? I believe that we can carry on, and I do not think that we should pay the high prices which are asked for the rolling-stock. I believe that it would be a quicker way to get the railways back to the full carrying capacity by concentrating on repairs.

Repairs.

Now, as to repairs. When I was talking about the number of wagons coming over from France you will recollect that I said they might come over very soon at the of 900 a week. They practically all want repair and small alterations, but repair is the bottle-neck. We could, if we wished, turn shipping or something else on in order to get those wagons, and if by doing that we could get any immediate benefit from it, I would not hesitate for a moment to arrange with the Ministry of Shipping, but I do not see any immediate benefit in it. The repair capacity of the railway shops in this country is equal to a million wagons per year. During the first half they did not build up to half their capacity, but during the first half they repaired in excess of their repairs' capacity, having borrowed from their building capacity, and in September they were repairing weekly

at the rate of 26,000 to 27,000 wagons a week, and they were marking off for repairs 24,000 wagons a week. That means that they are gaining at the rate of nearly 3,000 wagons a week. That means a rate of repair, as against a capacity of a million a year, of roughly 1,400,000. So, in repairs the railways are doing extraordinarily well. They are pushing repairs in every way ; they are giving precedence to repairs. I believe that repairs can be expedited, and they are in the way of being expedited, and the position is improving week by week, and I believe that this is the quickest and cheapest way to get the thing right. In addition, they have placed outside for repairs 11,000. It is not a big thing when you are doing 24,000 a week, but it is quite a big thing when you are trying to wipe out a deficit of 33,000. The deficit is going, but we have this complication: that it was undoubtedly an effect of the greater common use of rolling stock on any line that repairs have gone up enormously. That is due the fact that when a wagon gets out of repair on a foreign line it is not anybody's interest to get it into repair at once, and they have not got the spare parts.

Privately-Owned Wagons.

I now come to privately-owned wagons. There I agree that you cannot expect the private wagon owner to build with the possibility of his wagons being required hanging over his head when it is specifically provided in the Act, as I think we all agreed was prudent at the time, that the cost of a wagon—a new wagon—should not be exclusive proof of the value of it. Naturally, the private builder is not inclined to put his money into building wagons in these circumstances, but I hope to get over that by announcing very shortly that any private builder wishing to build, if he will consult with us, and we agree jointly as to the terms and specification of the wagons, we will agree to take that as the basis of acquisition. We think that that will help a great many private owners in their uncertainty if there is agreement as to the basis of the price of acquisition. We think that this will relieve the position which exists at present when no private owner is prepared to pay anything like the price that is being asked.

On the part of private wagon owners I am told that some private owners will not repair wagons, because they do not know what is going to happen. I cannot understand any man, if he has got some property which may be acquired on a valuation, letting it become derelict rather than make any repairs. Remember we have got, roughly speaking, to find something like 50,000 new wagons a year. Roughly 25,000 a year to replace obsolescence in the railway rolling stock, and 25,000 a year to replace obsolescence in the private owner stock. If we have to do that and we decide that we ought not to interfere with the private wagon builders, either to restrict their export trade so as to force the wagons into the hands of the railways, or to control the price—and I do not think that anyone here would advocate any such decision if we can avoid it—then we have another alternative, *to do what we did in munitions works.* Wagon-building, once you have the parts, is not a very difficult thing. We have

had wagons completed by unskilled labour in France, at prices which would compare favourably with those of any erecting shop in this country, and we are ready to undertake to set up wagon erecting shops, and I think that is probably the best thing to do. The wagon builders know their own business perfectly well. If they prefer to make these high profits now — and I think they must be high profits—and export their output, the country must take such steps as seem fit to provide for further accretions of wagons. While I say that I believe at the present time we can carry the traffic, I am perfectly clear that we should be criminally negligent if wedid not provide for further wagons for the next 18 months or two years ahead. I do not think the position is so desperate that we need pay such high prices now. I believe that we can erect wagons by turning into shops Government factories which are suitable. It can be done, as we proved in France, by demobilised soldiers. At present we have a difficulty with the trade unions, but the Minister of Labour is dealing with that, and I think that very shortly we shall be in a position to say that we can und ertake that work, and I think we can do it at a price which can compare favourably with anything quoted to us, and that would avoid any interference with the wagon builders. Legitimate builders will be open to quote against these concerns if they wish. I hope that we shall get a settlement on that before Christmas, and then I think we shall be able to go ahead without very great delay.

That is what I have to say about the wagon position. I do not think that it is so desperate. We shall get the wagons all right without having to pay these high prices and burden the transportation of the country, because it does not matter whether they are privately owned or State owned. The country will have to pay in higher freight rates, and we ought not to burden the capital of the companies with these enormous increases due to the high prices at the present time, because I do not think that it is necessary. If I was not sure that we could get along reasonably on the terms which I have explained, then I would not hesitate to say we have got to spend the money because we have got to spend what is necessary to avoid being throttled, if we are going to be throttled, but I do not think that we are going to be throttled.

Traffic Delay.

You may naturally ask, if the wagons are only down 5 per cent. and the traffic is down 14 per cent., why should there be this congestion? In the first place, there is a great increase in long loads. There is a great increase in the number of light loads. Those two things will readjust themselves in time, and are steadily readjusting themselves now. In the next place, there is a great detention of wagons. That detention has got the name which none of us who have been in trade like to hear: demurrage. It withdraws wagons from carrying, it congests the terminals, it causes a great deal of extra expense, and it makes bad and late runnings. Those detentions have increased vastly and are growing still at a very alarming rate. I would like to give figures, because this is one of the principal points in reference to the wagon shortage. During

September the number of wagon days lost by detention of publicly owned wagons over the free time was 340,000 days. That means that during the month the traders of the country commandeered half the rolling stock of the country for a whole day. That is excess detention over the free time.

Sir E. Jones: Is it not a fact that the railway companies will not clear the wagons ?

Sir E. Geddes: This is detention.

Mr. Remer: It is all the fault of the railway companies. They do not put them in sdings very often.

Sir E. Geddes: That may be in some cases, but these ret urns are not very far wrong. In September there were 18,200 wagons detained over seven days above free time. On the average those wagons were detained 10 ½ days above free time. That is a big leakage of rolling stock every bit as serious as the repairs.

Mr. Houston: Have you increased the demurrage charge ?

Sir E. Geddes: Not yet. On the whole estimate there is an increase of 36 per cent. in the detention of wagons over the free time. That is, of course, an estimate. It is rather difficult to check it conclusively. I have got out the figures which compare the position with the period September, 1913, to August, 1914. The average demurrage per month then was £12,000 at the same rates, and for the period January to June, 1919, the average demurrage per month was £31,000. So you get an increase at the same rate from £12,000 to £31,000 per month. Owing to an alteration in part of the free time the figures are not absolutely accurate, but they are a definite proof of the statement which I make.

I admit that traders have many difficulties also. They have got the eight-hour day. That is a great difficulty ; it dislocates their work. Railways have got it too, and it dislocates their work. Detention has taken place both in railway stations and in private yards. They have got changes in output and labour conditions. Their storage capacity is blocked. All those things militate against them in handling rolling stock. Owing to congestion the railways are not lifting the rolling stock as in other circumstances they would do, but still the fact is that a great deal of the deficiency in wagons is due to detention at the terminals. I have referred the demurrage charges to the Rates Advisory Committee. They are considering the matter at present. Their view, so far as I could gather it, is that from the point of view of the benefit to the trader who keeps the wagon, in some case the selfish trader and in some cases not, and from the point of view of the value of the wagon, the demurrage charge can justifiably be raised materially with benefit to the country.

Brigadier-General Croft: Progressively on time.

Sir E. Geddes: I have not got their recommendations. The present rate is far too low. The same thing applies to the detention of private wagons. So far as I am concerned it makes no difference which wagon

it is. We can check the private wagon detention by the amount of siding rent charged, and the private wagons are detained to the same extent.

Position on North-Eastern Railway.

There were two points raised by the honourable member for Middlesbrough to which I will refer, because it was largely owing to questions put by him and one or two of his friends that I have invited you to honour me by coming here to-day. The point which he put was that the shipbuilding yards on the Tyne and the steel works on the Tees were being held up for want of wagons. I have got figures from the North-Eastern Railway Company. It is bolster-stock that is used for carrying the long bars of material, and that company only sent 50 of these bolster wagons overseas. I think they have got them back, but these are only a small part of their total stock. During the war they did not build these wagons at all. They have now given priority to the building of 780 new bolster wagons, and they have borrowed 350 from other railways. I do not think that Middlesbrough district has really done so badly, because in October, 1919, they were forwarding an average of finished products of 1,667 wagons per day. That is only 10 per cent. below the boom period of 1913, and this period in October has included in it the whole of the dislocation caused by the railway strike. But there were three firms mentioned whose cases I would like to quote because they rather proved what I was saying just now as to the detention of wagons. Dorman, Long & Co., in 1914, had an average demurrage monthly of £18. Now it is £150. The Cargo Fleet Company in 1914 had an average of £5 10s. Now it is £120. The Consett Co. had an average of £6 10s. Now it is £73.

Mr. A. Williams: The Consett Co. say expressly that there is no substantial increase, and that it is due to a change in the system of charges.

Sir E. Geddes: Those are adjusted charges.

Mr. Thomson: We say exactly the same.

Sir E. Geddes: If there are any particular members interested in this, the best thing would be for them to favour me with particulars, and we will go into the figures.

Mr. Remer: Is it not the fact that the provision of additional wagons on the North-Eastern Railway is causing a great deal of dislocation in other districts, particularly on the Cambrian system ?

Ports (Congestion).

Sir E. Geddes: I have not heard that. A great deal has been said about the congestion of ports, and the situation is certainly very difficult. At certain ports it is improving gradually, and at other ports it is going more slowly. Generally speaking, the ports where they are going slowly

are the ports that used to do a lot of overside working, that is, loading into lighters.

Mr. Houston: It does not apply to Liverpool.

Sir E. Geddes: Liverpool is improving very much.

Mr. Houston: I am sorry to have to contradict that.

Sir E. Geddes: It was very much better, though it may be bad again. Hull is the place I am thinking of. Overside working has got bad, as these lighters are used very largely for the storage of the valuable stock in Hull. One honourable member wrote a letter to the papers the other day on the subject. The same difficulty is affecting the canal traffic. Lighters are fewer in number. They are hampered with the eight-hour day working, and they are being used for storage. They can earn quite as much lying at the corner of the dock full of goods. Unless those lighters are released it is quite impossible for the railway company to take the load which the coastal steamers used to take, and until we get those factors right there is no use in saying that the whole situation turns on the shortage of wagons.

Another reason for detaining wagons is the shortage of cartage. Railway cartage is subsidised cartage to-day. It is difficult to get figures. There is a great deal of congestion. One cause why the private carter is not coming in is that he cannot come in until the rates are raised. The cost of horse cartage has gone up from 100 per cent. to 150 per cent., and we cannot improve until the Railway Rates Committee have reported. That Committee is working very assiduously, and as soon as railway rates are readjusted on an economic level the cartage position will improve. The same thing will apply to the canals to a great extent, though not completely, and the same thing applies to shipping. Therefore what I would like to put before the meeting is this: that while undoubtedly trade conditions to-day are hampered by the dislocation of the transportation system of the country, it is not only the railways, but it is the canals and the coastal shipping, and it must be remembered that the coastal steamers are privately owned. We have gone as expeditiously as we can to get the report of the Rates Committee, and that will put the cartage right. Meantime over 1,300 motor lorries have been lent to the railway, companies and 500 to the ports to help to clear the congestion. The railway companies have asked for some more, and if we can get them they shall have them. When we get the railway rates generally on an economic basis, the cartage position will improve. The demurrage position will improve as soon as proper demurrage charges are imposed. Building is now going on to an increasing extent. Repairs are going on to an increasing extent. We are overtaking the arrears, and I submit that there is no reason to rush into giving large orders for wagons which we may not get in the immediate future. I believe that the policy which we are pursuing is the best, having regard to the necessity for economy, and not over-weighting the capital, and I believe that it is the most effective. It will take time, but I believe the position is steadly improving every day.

Appeal to Members of Parliament.

I would ask my colleagues in the House to help me as far as they can by impressing upon their constituents, traders and others, that it is really to the interest of the country to prevent forcing the State—because it is the State -buying enormous numbers of wagons now when we really can do without it. If everybody will put his back into turning the wagons round, then they can help a great deal if they will tell the people in the country that the railway companies are not free from difficulties, that they have their own difficulties. If honourable members will help me with their constituents to get them to realise that a wagon standing is actually transportation lost, and to get them to move in the matter, it will be of great advantage to us. You will all agree that our railways have done magnificently during the war. They are under the same management to-day. There is not one of the belligerent countries—and I have made it my business to inquire—whose railways are regaining their ordinary position with regard to traffic with less dislocation than this country. I know when one comes to the House of Commons, away from the hectic shriekings of the Press, one gets a cooler judgment of what he should do. It cannot help if the men to whom we owe a great deal for what they did on the railways during the war feel that they are condemned now when they are really pulling things out of a bad position. They are pulling things out ; the position is steadily improving, and I do not think it will be very many months before the improvement is felt, especially if we get the help of the traders.

Mr. Terrell: The figures which you have quoted are in a measure rather a serious reflection on the manufacturers of wagons who have been quoting to the railway companies, and I think that that will not only affect them in this country but must seriously affect them in reference to foreign markets. Will you agree to an independent Committee being set up, nominated by the manufacturing interests which are concerned, to check the railway figures which you have quoted, because it is no good comparing railway figures with manufacturers' figures unless you know absolutely that you are comparing like with like. It is only fair that those figures should be checked by the manufacturers, as I am afraid that this would have a rather serious effect. There is another point with regard to private owners' wagons. I have addressed questions in the House on this matter. I understand from the statement which you have made that there are something like 15,000 private owners' wagons waiting for repairs.

I happen to know that some of the private owners say, "We will not repair until we are certain that we are going to receive fair compensation when those wagons are taken over." That is a question which should be dealt with without difficulty. Incidentally, they also ask for a definite understanding with regard to new wagons which they may build. I think that your statement on this point will to some extent meet them, but it

is necessary to know that they are going to receive fair compensation for the old wagons which they may repair. You know perfectly well that when there is a question of houses being taken over by local authorities the owner takes no interest in these houses going out of repair. The same thing applies to railway wagons. Unless the private owner is satisfied that he is going to be fairly dealt with, he will let the wagons go out of repair. That is why the question ought to be dealt with at once.

II.

MOTOR TRANSPORT.

There are no official figures giving the numbers of mechanically propelled vehicles existing immediately before or after the war and at the present time. Estimates are of doubtful value, but at mid-summer, 1920, over 700,000 motor vehicles were believed to be in use (see Cmd. 660, Interim Report of Departmental Committee on Taxation and Regulation of Road Vehicles). Under the revised system of motor vehicle taxation, official figures of the actual numbers, by classes, of mechanically propelled vehicles will later become available.

The figures of the amount of imported motor spirit upon which duty was paid indicate the extent to which consumption by motor vehicles has increased. Taking the pre-war year as standard at 100, the corresponding figures for the years 1919 and 1920 are 125 and 169.

The development of motor transport since the war has been stimulated by various factors: the disposal of surplus vehicles surrendered from warlike services: the increased efficiency and design due to the wide experience gained from the exigencies of the war: and, not least, the raising of the railway charges, both for passengers and for freight, which has considerably extended the competitive capacity of motor transport.

The Government are undertaking the task of improving the roads, and of revising, in the light of present-day developments and requirements, legislation affecting mechanical transport. Steps have already been taken to raise the additional revenue necessary to deal with road improvements (Roads Act 1920), and a classification of the roads is in hand.

Already the majority of the main roads are covered by regular motor-omnibus services. Motor-coach traffic has greatly increased and is carried over considerable distances. Much of such traffic is additional traffic created by motor enterprise, but a certain amount is drawn from the railways.

There are also signs of the railless car taking the place of new tramways or tramway extensions.

Freight-carrying by road has largely increased. For certain classes of traffic, road transport is rapidly gaining in favour even in cases where the cost by rail may be slightly cheaper. Door-to-door transit; elimination of

handling, of packing of danger of pilferage, and often of delay, have led many firms to go in for their own motor transport, thereby keeping the carriage of their goods under their own control, and gaining a certain advertising value out of their vehicles.

Even amongst the local carrier services working into the market towns the motor vehicle is beginning to find favour, and there is undoubtedly a field for development in this direction.

The multiplicity of ownership of commercial motor vehicles and the difficulties of avoiding a large proportion of empty running, have caused road transport clearing houses (or back loading agencies) to spring up in different places. Recently, under the auspices of representative associations of commercial motor enterprise, steps have been taken towards co-ordinating the activities of such clearing houses.

The high price of, and a threatened shortage in the supply of, motor fuel is tending to stimulate the use of the steam and the electric wagon. The former vehicle is specially adapted for heavy loads where speed is not the paramount consideration. The latter vehicle is of great utility for distribution work, especially, in congested areas or to and from warehouses where fire precautions are essential. Hilly districts or long hauls are, however, generally unsuitable for this type of vehicle, and its intensive development depends largely on improvement of means of storage of electric energy.

GREECE.

I.

RAILWAYS.

A.—*Extent of the Railway System in Greece.*

The railway system in Greece before the war of 1914 consisted of :

1,061 km. of standard-gauge lines;
1,181 km. of narrow-gauge lines.

During the last war the line (89 km. standard gauge) from Papapouli (former Greco-Turkish frontier) to Plati (junction on the Salonika-Monastir line) was opened to the public. The construction of this line had been undertaken by the State. In August 1919, the Greek Government bought back the narrow-gauge lines (0 m. 60) from Sarakli to Anghista (115 km.). Hence, after the European war, towards the end of the year 1919, the Greek railway system consisted of :—

1,149 km. of standard-gauge lines;
1,246 km. of narrow-gauge lines.

After the occupation of Thrace by the Greek armies (May 15th, 1920), and the signature of the Treaty of Sèvres (July 28th, 1920) the lines of Thrace (597 km. normal gauge) came under the sovereignty of Greece, and the Greek railway system has since consisted of :—

1,746 km. standard-gauge lines;
1,246 km. narrow-gauge lines;

i.e., a total of 2,992 lines, of which 1,319 standard gauge and 865 narrow gauge. 72 % of the Greek railways are operated by the State.

Expenditure on construction and general upkeep of the Greek railways amounted to :—

At the end of	Standard Gauge	Narrow Gauge	
1914	233,598,000	139,933,000	drachmas
1919	276,486,000	142,970,000	»
1920	362,544,000	146,170,000	»

B.—*State of Track and Engineering Works.*

During the war the upkeep of the lines was more or less neglected, owing to the scarcity of labour and the lack of spare parts, and also owing to the heavy traffic with which the lines had to deal. It follows that the administration, both owing to the above-mentioned reasons and to the increase in wages and in the cost of raw material, has incurred extraordinary expenditure, both during and since the war, on account of the upkeep of tracks and rolling stock.

During the period from 1914 to 1919, about 38 million drachmas were spent on auxiliary works of an indispensable nature, namely strengthening of the sub-structure and super-structure, construction or enlargement of buildings, workshops, repairing sheds, depots, and the establishment of a sorting station and on purchases of rolling stock. In order to put these lines and this rolling stock into working order, an additional extraordinary expenditure of 80 million drachmas will probably be necessary.

Apart from these urgent works, it will be necessary in the near future to undertake additional work with a view to the reconstruction of the lines, *e.g.*, the reinforcement of the line Piræus-Larissa-Papapouli. It will be necessary on this section, in order to permit the circulation of fast and heavy trains, to replace the rails of 34 km. by rails of 49 km. and to replace the wooden sleepers (which now have a span from axis to axis of 95 centimetres and of 60 centimetres at the joints) by metal sleepers (increasing the span from axis to axis to 74 or 68 centimetres and 56 centimetres at the joints).

In this way, the track will be uniform as far as Plati. This work will necessitate an expenditure of about 80 millions. Similar work will have to be undertaken to reinforce the remainder of the line from Plati to Guevgueli, taken by the Simplon-Orient express. It is estimated that this work will necessitate an expenditure of about 43 million drachmas — in other words, the total for lines of standard gauge will amount to 80 + 43 = 123 million drachmas.

The reinforcement of the narrow-gauge lines will necessitate an expenditure of 40 million drachmas.

C.—*Proposed New Lines.*

At the present moment no new line is being constructed. The line from Uzunkopri to Gallipoli in Thrace, with a length of about 178 km., the construction of which was undertaken by the Turkish Government in 1915, is incomplete. The work was interrupted in 1918. The plans of this line are complete and the sub-structure has been completed over a length of 78 km. The Greek Government has not yet come to any decision with regard to the continuation of work on the line in question.

Since 1914 the Greek Government has had plans for various lines drawn up, with a view to completing the railway system. At the present moment the following plans are ready to be carried into effect :

1. *Standard Gauge.*

Line from Drama to Cavalla in Macedonia (planned by C. G. Wills & Son, 1920), 34,125 km. Estimated expenditure, 39,213,801 drachmas.

Line from Salonika to Anghista in Macedonia (planned by Hafner, 1915), 134,021 km. Estimated expenditure, 81 million drachmas.

Line from Kalabaka to Janina (planned by the Société des Batignolles, 1916), 105,200 km. Estimated expenditure, 400 million drachmas.

2. *Narrow Gauge.*

Line from Tripoli or Leontarion to Sparta and from Sparta to Ghitton in the Peloponnesus (planned by Floria, 1904-1915), 88 km.

Line from Herakkion to Messara in Crete (planned by Meinaraki, 1902), 17 km.

The following lines are being planned :

1. *Standard Gauge.*

Line from Piræus to Janina and to Valona. According to investigations carried out, the length of this line from Frantzi (station on the P. D. F. line near Yamia) through Carpenission–Arta–Lannina to the frontier would be 391 km. ; the estimated expenditure 512 million drachmas for the standard gauge and 307 million drachmas for the narrow gauge (one metre).

The survey of the standard-gauge section, Rivière Acheloos-Yannina-Frontier (length 227 km.), entrusted to the Italo-Hellenic Syndicate, is nearly completed.

Line Kalabaka–Cozani–Sorovits, length 150 km. The survey, begun in July 1914, was interrupted owing to the war.

A short preliminary survey of the following lines has also been carried out with a view to subsequent elaboration :

Larissa–Deminitsa, length 97.5 km. This line meets the Kalabaka–Cozani–Sorovits line at Deminitsa.

From km. 52 of the Larissa–Deminitsa to Verria (Caraferia) line, 100 km.

From km. 69.4 of the Kalabaka-Sorovits line to Koritsa, 125 km.

From km. 38 of the above line to Sorovits, 47 km., making a total of :

Lines surveyed	479 km.
Lines to be surveyed	341 km.
Lines projected	370 km.

D.—*Rolling Stock.*

The rolling stock of the Greek railways in 1914 was as follows:

1. *Standard Gauge.*

Locomotives	108	Covered wagons	1,537
Tenders	82	Trucks	691
Passenger coaches	261	Cranes	4

In 1915 the Greek Government ordered 20 locomotives of the "Mikado" type (weight 82 tons) from America. During the Balkan wars six locomotives belonging to the Bulgarian Railways were taken by Greece as war booty.

In 1919-1920 the French Government ceded to Greece 10 locomotives (type P. 8) and 620 "Armistice" wagons, against a deposit of 800,000 dollars.

During the war, several coaches and wagons belonging to the Macedonian Railways were lost or destroyed. In this way, the park of rolling stock belonging to the Greek railways comprised at the end of 1920 (excluding the railways of Thrace):

Locomotives	152	Covered wagons	1,682
Tenders	116	Trucks	870
Passenger coaches	242	Cranes	3

2. *Narrow Gauge.*

The narrow-gauge rolling stock scarcely varied from 1914 to 1920, the only addition being the stock accruing from the purchase of the Sarakli-Anghista line.

Rolling Stock:	in 1914	in 1919-20
Locomotives	135	142
Tenders	5	8
Passenger coaches	413	409
Covered wagons	745	784
Trucks	652	825
Cranes	8	8

Average for 10 km. of line:

	Standard Gauge	Narrow Gauge
Locomotives	1,15	1,14
Carriages	1,83	3,28
Covered wagons	12,74	6,29
Trucks	6,18	6,62

E.—*Condition of Rolling Stock.*

Owing to the war the rolling stock has not been kept up to standard.

1. *Standard Gauge.*

On the Greek railway system (P. D. F. System) — 20 % of the locomotives are under repair, waiting their turn to enter the workshops. The number of locomotives unfit for service will probably increase in 1921 owing to the increased mileage allotted to those in use.

30 % of passenger coaches are unfit for service, for the same reasons.

As regards the rolling stock for goods traffic, its upkeep is up to date and it is sufficient in quantity.

The delay in the repair of rolling stock is due to:

1. Smaller output from the workshop.
2. Lack of spare parts.
3. Insufficiency of workshop plant.

On the Macedonian railway system (C. O. S. M. and J. S. C.) there are 45 % of the locomotives and 30 % of the passenger coaches unfit for service—either under repair or waiting to enter the workshops. The upkeep of the goods stock is satisfactory. The estimated cost of completing and repairing the rolling stock and the standard-gauge workshops is about 20 million drachmas.

2. *Narrow Gauge.*

The upkeep of the rolling stock of narrow-gauge lines is rather backward so far as heavy repairs are concerned, but it is hoped that this delay will be made good in the course of the present year by increasing the output of the workshops, which are for the most part adequate.

F.—*Urgent Requirements in the matter of Rolling Stock.*

1. *Standard Gauge.*

Passenger coaches are needed on the Piræus-Plati line.

The cost of the purchase of these coaches would amount to about 3,000,000 drachmas. The remainder of the rolling stock is sufficient at present.

2. *Narrow Gauge.*

About ten locomotives and 100 goods trucks, to the value of about 5 million drachmas, are needed.

The total cost of completing and renovating the rolling stock of the railways in Greece would thus amount to about 28 million drachmas.

G.—*Traffic.*

Operation of the Rolling Stock.

The results of the operation of the Macedonian railways (C. O. S. M. and J. S. C.) for the years 1914 and 1919 are unobtainable. The last figures available are those for the year 1912. Since then these lines have had their administration and method of working changed on several occasions, and for this reason it has not been possible to assemble the requisite statistical information.

These railways were administered by the companies holding the concessions until September 1915, when they were taken over by the Greek Government, which administered them until May 21st, 1916. On this date they were taken over by the French Army of the East and were operated during the whole of the war under the French military regime. The latter handed back the C. O. and S. M. lines to the Greek Government on March 1st, 1920, which also purchased the J. S. C. line from the concessionary company on July 1st, 1920.

The Macedonian railways have therefore not been included in the comparative tables of working results for the years 1914 and 1919 and after. The operation figures for the year 1920 have not yet been obtained.

The comparative tables show that the distance covered by the rolling stock during 1919 increased by 66 % as regards broad-gauge lines in comparison with 1914, but decreased by 13 % on the narrow-gauge lines. The composition of the trains has not changed much ; passenger trains show a decrease of more than 50 %, whilst the number of goods trains has greatly increased.

The weight carried per kilometre has not varied much on normal-gauge lines. More passenger kilometric-tons have, however, been transported in 1919 than in 1914, but less goods kilometric-tons. As regards narrow-gauge lines, the weight transported shows an increase of 15 % both for passenger and goods traffic.

Generally speaking, the passenger traffic for 1919 compared with 1914 was higher by 14 % on standard-gauge lines, and the average distance travelled per passenger increased by 8.3 %, and on the narrow-gauge lines it was higher by 11 % and 24 % respectively.

In 1919, compared with 1914, the luggage traffic was higher by 67 % on the normal-gauge lines and the average distance 66 % higher ; on the standard-gauge lines it was higher by 23 % and 2 % respectively.

Goods Traffic.

Fast goods traffic on standard-gauge lines was higher by 253 %, and the average distance by 22 % ; on narrow-gauge lines it was higher by 8 % and 7 % respectively.

Slow goods traffic on the standard-gauge lines was higher by 9 %, and the average distance lower by 28 % ; on the narrow-gauge lines it was respectively lower by 1 % and higher by 11 % than in 1914.

The traffic of livestock, large and small, was less by 25 % on the standard-gauge lines and 60% higher on the narrow-gauge lines than in 1914.

Comparative Table showing Working of Rolling Stock.

	Standard gauge		Narrow gauge	
	1914	1919	1914	1919
Total distance :	Km.	Km.	Km.	Km.
Locomotives	1,055,709	11,951,870	3,393,829	3,023,416
Coaches	1,721,441	—	12,291,378	10,467,608
Wagons	4,660,014	—	13,234,873	11,582,771
Trains	965,975	1,651,252	2,516,388	2,364,329
Effective running per km. of line :				
Locomotives	2,286	3,671	2,948	2,673
Coaches	3,903	—	10,679	9,255
Wagons	10,567	—	11,498	10,241
Trains	2,287	3,121	2,186	2,091
Average composition of trains :				
Locomotives	1.044	—	1.03	1.025
Coaches	1.707	—	4.45	4.86
Wagons	4.621	—	3.29	3.41
Number of passenger trains per day	6.	3.18	14.30	4.96
Number of goods trains per day	0.263	4.23	0.61	1.11
Weight transported :				
Total dead weight of locomotives, coaches and wagons.	112,952,852	—	243,731,377	202,883,422
Useful load, passenger	3,330,853	8,327,234	9,014,555	12,649,621
Useful load, luggage, goods and live stock kilometre-tons	14,070,170	12,829,700	40,361,950	44,280,937
Useful load, per kilometre of track	39,458	39,994	43,658	50,337
Weight transported per kilometre of track	295,587	—	256,999	229,923

Comparative Table of Traffic.

	Standard gauge		Narrow gauge	
	1914	1919	1914	1919
Passengers: 1st, 2nd and 3rd class	623,762	852,598	4,553,830	5,030,047
Passengers per kilometre of track	1,414	1,612	4,026	4,448
Passenger-kilometres	47,583,615	118,960,494	144,141,822	196,666,652
Average journey per passenger-kilometre	76,285	139,526	31,653	39,098
Luggage, Goods and Live Stock:				
Total weight of luggage-tons	2,022	3,377	7,088	8,700
Luggage, kilometre-tons	258,816	718,488	558,697	700,248
Average journey, luggage, kilometres	128	212	78,8	80,5
Total weight, fast goods, tons	3,462	12,064	27,915	30,271
Fast goods, kilometre-tons	384,282	1,640,705	2,761,116	3,211,267
Fast goods, average journey, kilometres	111	136	98,9	106
Slow goods, total weight, tons	92,282	100,281	514,164	506,879
Slow goods, kilometre-tons	12,550,352	9,793,200	36,507,762	40,201,114
Slow goods, average journey, kilometre-tons	136	97,6	71	79,2
Livestock (Large): fast and slow freight train	516	1,128	1,423	6,843
(Small), fast and slow freight trains	118,900	88,700	57,332	87,035
General live stock, km.-tons	876,720	673,312	—	1,114,336

H.—*Rates.*

Before the war an average of 4.5 centimes per traveller-kilometre were collected in old Greece, and 8 to 10 centimes per ton-kilometre for slow-traffic goods.

Since 1916 the general rates have been increased successively by 20 %, 10 %, 30 %, 20 % and 10 %, and special rates were abolished. Thus, on standard-gauge lines (P. D. F.) the average general rates have been increased from 1914 to the end of 1919 by 160 %, and up to the end of 1920, by 240 % ; on narrow-gauge lines up to the end of 1919, by 78 %, and up to the end of 1920, by 110 %.

As a result of the abolition of special rates, the cost of transportation was increased on standard-gauge (P. D. F.) lines, up to the end of 1919, by 400 %, and to the end of 1920 by 533 %, and on narrow-gauge lines this cost was increased to 297 % up to the end of 1919 and to 396 % up to the end of 1920.

Rates for accessory expenses on all lines have increased on an average by 244 % up to the end of 1918.

Rates for military transport have increased since May 1918 to the same extent as other rates, and these increases amounted, at the end of 1919, to 30 % on standard-gauge, and 200 % on narrow-gauge lines.

For special military trains these increases have reached 165 % and 135 % respectively.

The applicationof these new increased rates has resulted in a rise in receipts much greater than the increase in passenger and goods traffic indicated above ; the average increase compared with the unit price of transport (per passenger-ton) is given in the following table :

Total average increase per passenger-ton in Railway Receipts for former Greece in 1919, as compared with 1914.

Lines	Year	Average receipt per Passenger-kilometre	Increase	Average receipt per goods kilometre-ton	Increase	Average receipt per km.-ton general traffic	Increase
Standard-gauge (P. D. F.)	1914	0,042	200 %	0,100	280 %	0,196	265 %
	1919	0,126		0,380		0,720	
Narrow-gauge	1914	0,0465	68 %	0,130	153 %	0,301	118 %
	1919	0,0785		0,309		0,658	

I.—*Fuel.*

1.—*Consumption.*

Standard-Gauge Lines (P. D. F.).—In 1914 the consumption of fuel amounted to 11,157 tons of English coal at an average cost of 37.07 drachmas per ton, and in 1919 to 37,429 tons, 2,431 of which was native lignite and 976 tons of wood fuel.

The coal consumed in 1919 originated from various sources, and the average price was 270.55 drachmas per ton, that of lignite 140 drachmas and that of wood fuel 72 drachmas per ton.

The cost of consumption per ton kilometre amounted to 83 drachmas in 1914 and 120 drachmes in 1920. The increase in consumption was due partly to the poor quality of the coal and partly to the use of fuel of lower calorific power, such as lignite and wood fuel.

Narrow-Gauge Lines.—On the narrow-gauge mines in former Greece 26,243 tons of English coal were consumed in 1914, at an average price of 37 drachmas, and in 1919 44,864 tons, consisting of 18,123 tons of coal from various sources at an average price of 271.40 drachmas ; 11,357 tons of native lignite at an average price of 101.70 drachmas, and 15,473 tons of wood fuel at an average price of 78.50 drachmas.

The average consumption per kilometre-ton amounted to 89.6 grammes in 1914, and 172 grammes in 1919.

2.—*Total Increase of Expenditure due to Fuel.*

The increase of expenditure in 1919, as compared with 1914, which resulted from the increased consumption and the higher cost price of fuel amounted to 9,091,000 drachmas for standard-gauge lines (P. D. .F.), and 7,750,000 drachmas for narrow-gauge lines (P. D. F.).

J. *Financial Situation of Greek Railways.*

The table on page 99, which gives the financial situation of the railways of former Greece, includes the most important general information, except the statistics of the Macedonian railways for the years 1914 to 1919.

General Results of the Operation of Railways during the years 1914 to 1919.

Year	Receipts	Working Expenses	Co-efficient of Operation	Net Receipts	Expenses of the Administrative Board	Capital account	Interest on Original Capital	Results of Operation of Railways
				I. *Normal Gauge.*				
1914	3,633,734	3,382,998	93 %	+250,736	88,000	500,000	4,500,000	- 4,749,264
1919	20,543,877	22,724,175	100,6 %	—2,180,298	72,625	500,000	6,637,812	- 9,390,735
				II. *Narrow Gauge.*				
1914	11,347,749	6,863,188	60,5 %	+4,484,561	240,092	4,040,104	2,829,146	—2,824,780
1919	29,095,090	24,030,098	82,5 %	+5,064,132	476,307	3,788,370	2,829,466	—2,030,000

II.

MARITIME NAVIGATION.

In 1914 the Greek fleet was composed of the following:

474 steamships with a total tonnage of	830,000 tons.
884 sailing vessels with a total tonnage of	135,000 »
Total	965,000 tons.

During the war the merchant fleet suffered serious losses, amounting to:

227 steamships of a total tonnage of	669,600 tons.
240 sailing vessels of a total tonnage of	18,000 »
Total	687,600 tons.

At the end of the war, therefore, in December 1918, the merchant fleet consisted only of:

200 steamships of a tonnage of	180,000 tons.
640 sailing vessels with a total tonnage of	115,000 »
Total	295,000 tons.

Since the Armistice and up to the end of January 1921, the following have been acquired or built:

200 steamships with a total tonnage of	350,000 tons.
500 sailing vessels with a total tonnage of	80,000 »
Total	430,000 tons.

From these must be deducted the following vessels, which have suffered shipwreck or have been sold:

10 steamships with a total tonnage of	15,000 tons.
40 sailing vessels with a total tonnage of.	300 »

At the beginning of 1921, therefore, the merchant fleet consisted of:

390 steamships with a total tonnage of	515,000 tons.
1100 sailing vessels with a total tonnage of.	177,000 »
Total	692,000 tons.

Shipping Lines.

Forty-nine passenger and cargo steamships, with a total tonnage of 25,000, and a large number of sailing vessels carry on passenger and goods traffic between the various ports of the country.

Twenty-five passenger and cargo steamships, with a tonnage of 26,000, carry on trade, particularly regular services between Piraeus-Marseilles, Piraeus-Brindisi, Piraeus-Alexandria and Piraeus-Smyrna-Constantinople.

Four Transatlantic steamships, tonnage 37,000, run from the Piraeus to New York.

Seventeen steamships requisitioned which have been, (tonnage 25,000), are at present fulfilling the requirements of State transport.

The remainder, apart from a few small steamships and tugs, is composed of 200 cargo vessels, with a tonnage of about 315,000, which do not run on regular lines, but for the most part ply between foreign ports, especially between America, England and France.

The reason for this is partly that the total tonnage of these cargo vessels is greater than the import and export needs of the country, and partly that Greek shipowners have no objection to sailing their vessels in distant seas, provided that they obtain good freights.

The import and export trade of Greece, therefore, is not served entirely or even preferably by national vessels, but, taking advantage of the most advantageous freight conditions, she makes use of vessels under foreign flags and particularly of British vessels.

Before the war one of the most important fields of action for the Greek merchant fleet was the Black Sea, and she will certainly recover this field when Russian affairs have been settled and when exports into Roumania have been resumed. To give an idea of this activity, we may state that 25 % of the tonnage of the vessels proceeding from the mouth of the Danube alone sailed under the Greek flag. Indeed, in 1914, out of a total tonnage of vessels sailing from here, 1,356,090, 461,000 tons were under the British flag, 331,030 tons under the Greek, and the rest under all other flags.

III.

INLAND NAVIGATION.

The rivers of Greece are not navigable. Nevertheless, a considerable fleet of river craft under the Greek flag carries on transportation of goods on the Lower Danube between Turnu-Severin and Galatz, a distance of 670 km.

These vessels, consisting of 355 barges, with a total tonnage of 319,334, form about half of the tonnage of the river fleet between the mouths of the Danube and the Iron Gates.

GUATEMALA.

The Republic of Guatemala is one of the most important states of Central America ; its territory is 125,000 square kilometres in extent, and its population numbers 2 ½ million persons. It has an excellent geographical situation, with three ports on the Atlantic Ocean (Puerto Barrios, Livingston and Santo Tomás) and three on the Pacific (San José, Champerico, and Ocos).

The most important port on the Atlantic is Puerto Barrios, and on the Pacific San José ; these two ports possess rapid interoceanic railway communications, which cross Guatemala, pass through the capital of the Republic, unite the two oceans and not only facilitate the rapid transport of all the traffic of the country, but are also of great assistance to the neighbouring republics.

These two ports form the extreme limits of this railway, which is 269 miles long, a distance which can be covered in 17 hours. The line unites the Republic to Mexico, and joins at the frontier the line which runs to the capital of that republic ; and it has branch lines which unite the different provinces to one another. Various schemes are being considered for the construction of new railways to effect contact with the neighbouring republics, especially with Salvador, and also to join the rich agricultural and commercial provinces of "los Altos" with those of "del Centro".

* * *

The total length of railway track in the Republic is 1,030 kilometres.

The major portion is worked by a North American company, the International Railways of Central America. The railways may be considered as being divided into the following three sections :

Pan-American Section.—This section comprises the line which starts from Santa Maria and runs to the Mexican frontier. It forms part of the Pan-American line in accordance with the agreement arrived at by the Congress of Diplomats held at Washington—the line which is destined to unite the whole length of America from the town of Dawson in Alaska to Valparaiso in Chile, covering a total distance of 16,000 kilometres.

Pacific Section.—This section comprises the line running from the capital to the port of San José on the Pacific (which meets the Pan-American at Santa Maria), the line which runs from Retalhukeo to Champerico (on the Pacific) and the line running from Ocos (secondary port on the Pacific) to Ayutla on the Mexican frontier.

Atlantic Section.—Line of Puerto Barrios on the Atlantic.

Besides these three principal sections, there is the Vera Paz railway, which, starting from Pancajché, an important centre of the Alta Vera Paz region, terminates at the river port of Panzos.

All these railways run mixed passenger, luggage and goods trains and special goods trains.

About 1,000 to 1,500 persons pass through the central station every day. It is impossible to give exact details of the tonnage of goods and luggage, but the figures are considerable. Under the new régime, there has been an important increase, as there is no restriction on passengers and transport entering or leaving the country.

* * *

In addition to the above-named railways, there are innumerable roads, which assist the transport of our products both for export and local consumption, and to which the new administration has given special attention. There are also different services of motor lorries for transporting passengers and goods ; and there are rivers of a purely local but not international interest, such as the Rio Polochio, with its river port Panzos, and the Rio Motagua with Gualan as its port ; these rivers can be used only by small vessels carrying passengers, luggage and goods, etc. All these different routes cross the Republic from south to north, connecting the two oceans, and they serve the export of our products from Puerto Barrios on the Atlantic and San José on the Pacific. The principal products are gold, silver, copper, iron, lead, zinc, antimony, coal, stone, sulphur, mica and sugar, bananas, wood for the manufacture of furniture, hides, indiarubber, medicinal herbs, fruit, cocoa, and coffee, of which 1,500,000 to 2,000,000 bags are exported annually. At the present time a committee of experts is prospecting and studying the working of oil wells, which will probably form a great source of wealth for the country.

* * *

In 1914, the year of the war, the exports amounted to $15,130,000 (gold).

In 1919, the year after the war, the exports amounted to $24,550,000 (gold).

* * *

The principal articles imported are cotton fabrics, wool and silk, agricultural and industrial machinery, iron goods, drapery, pianos, vehicles,

billiard tables, musical instruments, professional instruments, paintings, varnish, medicines, perfumes, jewellery, precious stones, fancy goods, motor-cars, electrical plant, preserves, wines, liqueurs, corks, cigarette paper, stationery, etc., etc.

In 1914, the year of the war, imports amounted to $6,870,000 (gold).

In 1919, the year after the war, imports amounted to $10,157,000 (gold).

These figures prove clearly the importance of Guatemala trade and the very marked increase since the war ; the trade figure for 1919 was $34,717,000 (gold) while that for 1914 was $22,000,000 (gold), which makes an increase of $12,717,000 (gold) since the war, not including 1920, in which year the exports rose 30 % and the imports 10 % as against 1919, approximately (exact figures not being available because the detailed statements in respect of 1920 are at present being submitted by the various departments to the regular session of the Legislative Assembly.

* * *

Shipping.

The principal shipping lines used by the Republic of Guatemala for its foreign trade are as follows :

The ships of the Pacific Mail S.S. Co. visit the Pacific ports of the Republic, plying from San Francisco in California to Panama ; at Panama they connect with the French Transatlantic, the Spanish Transatlantic, and the Veloce Italian Company, which cross the Atlantic from Europe.

The ships of the Pacific Steam Navigation Company, which ply between Champerico (Guatemala) and Panama, connect at the latter port with those of the Royal Steam Packet Company, which ply between Colon and the European ports.

Latterly, several lines have been instituted which ply between our ports and the other ports on the Pacific.

The shops of the United Fruit Co. call weekly at the Atlantic ports Puerto Barrios and Livingston in a direct service from New Orleans and New York ; these ships receive passengers and goods from the European ports, the goods being transhipped at New York ; the passengers and goods arrive by the Transatlantic European lines referred to above.

The only direct line coming from the ports of Europe is the Royal Dutch Mail, which calls once a month at Puerto Barrios, and can execute direct transport with Europe.

Communication with Europe by the above-mentioned lines, with the exception of the Dutch line, is long and costly, on account of the great distances to be covered, the transhipments, and the numerous calls that have to be made ; goods take over 45 days to reach their destination. No mention has been made of the Barcelona-Panama line, which plies to the Pacific, as this difficult route involves a great waste of time.

Traffic in the Ports of the Republic, 1914.

Incoming	Steam packets and sailing vessels	846
	Tonnage	1,145,401
	Passengers	7,013
Outgoing	Steam packets and sailing vessels	840
	Tonnage	1,110,105
	Passengers	7,484

Traffic, 1919.

Incoming	Steam packets and sailing vessels	1,300
	Tonnage	2,248,000
	Passengers	23,000
Outgoing	Steam packets and sailing vessels	1,494
	Tonnage	2,240,000
	Passengers (approx.)	27,000

These comparative tables show the difference between the traffic in the year of the war and the year after the war.

It is not difficult to form an idea of the importance which Guatemala's commerce with the European countries might assume if there were direct communications. Such communications could be effected by the existing Transatlantic lines, which might call at least once a month at Puerto Barrios—our principal Atlantic port.

The line most adapted for this improvement is the Spanish Transatlantic Company, whose ships leave Barcelona regularly every month for Havana and Mexico, and thus sail very near to our ports and the ports of Honduras. Therefore:

Considering the extensive and varied nature of the commerce which might be transacted between Central America and Europe, and the advantages of a direct line from Barcelona to Puerto Barrios (Guatemala) with few calls, which would effect a great saving of time, and be highly advantageous for the development of commercial relations between America and Europe, which are at present of minor importance owing to the lack of communications;

And considering that the Republic of Guatemala is, by reason of the development of its commercial shipping, the most suitable country to act as a link between Central America and the Iberian Peninsula and other European countries, and that these relations cannot fail to create important general international commerce;

And considering that Spain has coasts on the Mediterranean Sea and the Atlantic Ocean and has rapid means of communication with the Great European Powers, such as France, Italy, England, etc., and is therefore in a speclaliy advantageous position in Europe;

And considering that there would be great benefit on all sides from such a direct route for passengers, emigrants, correspondence, parcels, etc.,

The Delegate of the Government of the Republic of Guatemala presents this statement in the hope that it will be taken into consideration, and that recommendations may be made favourable to Guatemala, and thereby to all Central America, particularly with a view to the establishment by the most rapid means of a maritime route for communications and transport between Barcelona (Spain)—since this port is a favourable centre of communication with the principal European cities — and Puerto Barrios (Guatemala).

This line might take the following route :

Barcelona, Cadiz, Canary Islands, Havana, Mexico, Puerto Barrios, New Orleans, New York, and vice versa.

HAITI.

The system of internal communications and transport in the Republic of Haiti corresponds to the geographical, topographical and climatic conditions of the country. The area of the territory is 27,552 square kilometres with a population of 2,500,000 persons, and there are thus 94 inhabitants per square kilometre ; the towns being in many cases situated at short distances from one another, both in the interior of the country and on the coasts. The general configuration of the country, which forms two large peninsulas enclosing the Gulf of Gonave, renders the coast-line very long, while the interior of the country is narrow; owing to the nearness of its coasts to the frontier of the Dominican Republic. Rain descends from chains of high mountains into the various rivers which traverse the cultivated plains in all directions.

All these circumstances have a direct influence upon the conditions of communication and the means of transport throughout the entire country. The harvest collected on the hills and in the plains is transported by animal traction on the paths and roads which lead to ports open to foreign trade, or act as connecting roads between the plantations and the populations of the interior ; these methods of transport, although primitive, are the best suited to the requirements of agriculture and are only employed during the harvest seasons.

Postal service and passenger traffic are effected on roads parallel to the coast or crossing the country, which date from the time of colonisation. The local government and administration endeavour to keep them in good condition in spite of the damage caused by the long rainy seasons [1].

I.

RAILWAYS.

There is a narrow-gauge railway system in Haiti, the construction of which was begun about 25 years ago, but which has had to be suspended owing to the difficulties caused by the war. The various railways and

[1] *Cf.* B. Aubin, *En Haïti*, Paris, 1910.

tramways, owned by companies of Haitian nationality, were constructed by Germans or North Americans. On the capital of the Port-au-Prince to l'Etang-Saumâtre line, limited to 16,000 dollars per kilometre, the State of Haiti had guaranteed interest of 6 % on the security of a part of the export dues. In 1915 the total length of the railway was 252 kilometres, and since then it has not been possible to develop it.

The following are the lines at present in operation :

From Port-au-Prince to Mirabelais and Las Caobas (33 km.) ;
From Port-au-Prince to Cap Haïtien (169 km.) ;
From Port-au-Prince to Léogane (22 km.) ;
From Port-au-Prince to L'Etang-Saumâtre (45 km.). [1]

These are only sections of a railway which will cross the departments of the north, west, north-west and the Artibonite, and it is desirable that work should be resumed in order to continue the construction and complete it as soon as possible. It is also desirable that new concessions should be asked for in accordance with the laws of the Republic, and that the companies which obtain them should possess the honesty, the capital and the perseverance necessary in order to bring the work to a successful conclusion, with the twofold object of realising lucrative results and of contributing in this way to the agricultural and commercial progress of the people of Haiti.

II.

NAVIGABLE WATERWAYS.

The only river which is navigable for a distance exceeding 150 kilometres is the Artibonite, and a service of boats on this river would do much to develop the manifold wealth of this fertile region. A proposal put forward by M. Leon Nau relating to the establishment and working of a service of boats on this river was voted some years ago by Parliament, but has not been put into effect.

III.

SHIPPING.

In 1914 both the coasting trade and the over-seas trade were organised under the conditions best adapted to the requirements of the trade of Haiti.

[1] *Cf.* S. Vincent, *La République d'Haïti telle qu'elle est*, Bruxelles, 1910, pp. 176-177.

Traffic in the ports in	1913	1914	1916	
was represented by	1,194	906	112	vessels
with a tonnage of	2,276,765	1,171,546	420,474	tons.

The ships effecting this traffic belong to the following companies and lines :—

(a) Compagnie Côtière Haïtienne,—B. Rivière & Co.—Coasting line.

(b) Compagnie Générale Transatlantique, monthly service : Havre-Bordeaux-Haiti, calling at Port-au-Prince and Cap Haïtien.

Fort-de-France to Port-au-Prince line, calling at Les Cayes, Jérémie and Jacmel.

Auxiliary Service : Gonaives, St. Marc and Petit Goâve.

(c) Hamburg Amerika Line, Hamburg, Port-au-Prince, calling at Cap Haïtien, St. Marc, Gonaives and Port de Paix.

Atlas Service : New York, Port de Paix, Cap Haïtien, St. Marc and Gonaives.

(d) Koninklyke Westindische Maildienst—from Amsterdam to Jacmel, Les Cayes, Jérémie, Petit Gôave.

Special Service : New York to Port-au-Prince, via St. Marc and Gonaives.

(e) Norwegian Line : New York to the ports of Haiti.

(f) Other Lines : Spanish, Italian, Anglo-American, etc., with transhipment at New York or at the ports of the Antilles.

The difference to be noted between the shipping figures previous to 1914 compared with those of later years is due to the absence of the ships of the Hamburg Company and to the irregularity of the service of the Compagnie Générale Transatlantique. The latter has reorganised its former time-table and there is every reason to hope that the system of communication with Bordeaux and Le Havre will soon be as extensive as it was before the war ; but Haiti will be without the co-operation of the German line, which was the principal factor in assisting the export of Haitian produce to the markets of Northern Europe.

In order to compensate for the absence of this line, as well as to consolidate and increase traffic with the markets of Northern Europe, it would be desirable to establish a shipping service between the ports of Great Britain and those of Haiti similar to that which formerly existed. Commercial relations between Haiti and the Mediterranean ports should also be established and developed, and it would be very advantageous to realise the idea, already suggested, that the Société Générale des Transports àVapeur should be encouraged to organise a regular service between Marseilles and Haiti, calling at the Spanish ports and those of Italy, North Africa, the Adriatic and the Levant as far as the Black Sea, which would open up for Haitian produce the markets of Spain, Italy, Central Europe, the whole of North Africa, the Balkan countries, South Russia, Greece and the East.

Ports.

There are twelve ports in Haiti open to foreign trade : Port-au-Aquin, Prince, Cap Haïtien, Jacmel, Jérémie, Gonaïves, Les Cayes, St. Marc, Miragoâne, Port-de-Paix, Petit Goâve and Môle St. Nicholas, and there are also four ports of call which are used for the export of campeachy wood and other timber, namely : Anse d'Hainault, Port à Piment, Port Liberté et Grande Saline.

Exports.

The most important produce of Haiti is coffee, which yields a yearly harvest of 100 million pounds, two-thirds of which is exported and the remainder consumed in the country. Next in order, the chief exports are the following : cocoa, cotton, campeachy and other dye-woods, fine timber, oleaginous grain, fruit, rinds, grain, sugar, syrup, etc., of which the quantities exported are indicated in the following table :—

		In 1914	In 1918
Coffee	lb.	78,512,000	39,000,000
Cocoa	»	6,088,000	4,500,000
Cotton	»	3,122,000	2,780,000
Oleaginous grains	»	5,370,000	9,921,629
Dye-woods	»	62,021,040	57,149,000
Wax	»	82,445	28,000
Honey	»	1,264,690	1,706,000
Maize	»	—	21,119,000
Leather and Skins	»	507,000	429,000
Orange peel	»	515,295	—
Fruit, vegetables, etc.	»	1,551,448	—
Mahogany	(cubic feet)	—	205,517

Trade.

Value of Exports.

	1917	1918
	Dollars	
United States	4,000,000	6,750,000
France	4,200,000	3,000,000
England	1,000,000	100,000
Germany	—	—
Other countries	3,800,000	1,150,000
Total (dollars)	13,000,000	11,000,000

Value of Imports.

	1914	1917	1918
	Dollars	Dollars	
From the:			
United States	6,381,000	7,500,000	9,000,000
France	345,000	500,000	500,000
England	409,000	700,000	350,000
Germany	338,000	—	—
Other countries	138,000	1,300,000	250,000
Total (dollars)	7,612,000	10,000,000	10,100,000

In concluding these notes, we venture to take this opportunity of repeating the wishes expressed at the second Pan-American Conference of Washington by the Delegation of the Republic of Haiti, which voiced the aspirations of the people and Government of Haiti in words full of loyalty and patriotism, which seem to us worthy of textual reproduction:

"We have frequently insisted in the Haitian Committee upon the urgent necessity of the reconstruction of railways into the interior of Haiti. But pending the establishment of a complete railway system, which is an undertaking requiring time and considerable capital, our Committee has unanimously expressed the wish that the construction of roads should be actively undertaken in order to facilitate, in every way, the transport of produce, which is now wasted in the interior of the country owing to the lack of means to transport it to our coasts for export, and in order to assist at the same time the development of production." "The Committee has also asked that the greater part of the funds which will be available as a result of the next loan should be employed on the construction of roads in Haiti. The frequenting of our ports by foreign ships desirous of collecting freight depends upon the construction of these roads, which will facilitate the arrival in our Customs Offices of all our present and future produce. Moreover, our Delegation has formally promised that the Government of Haiti will afford all the assistance in its power to shipping companies whose ships arrange to call regularly at our ports."

HUNGARY.

I.

RAILWAYS.

A. The Position of the Hungarian State Railways.

Extent of the System.

The length of line of the Hungarian State Railways and local services coming under their administration, possessed before the war a total length of track of 19,642 km.

Owing to the conditions now prevailing, the length of track has undergone the following alterations:

Within the frontiers determined by the Treaty of Peace the length of track is 7,052 km., of which 2,998 km, (863 km. double track) come within our own system, while 4,054 km. are. local lines under our administration. All these tracks are of standard gauge, with the exception of a small local railway 16 km. in length. The length of track still occupied by the Serbians includes 124 km. of "M. A. V." lines and 424 km. of local lines; in all 548 km.

On the other hand, the length of lines of the Hungarian Western line is: "M. A. V." lines, 38 km., local lines 192 km.; or 230 km. in all.

When our old frontiers were in their former position we handled transit traffic at 14 frontier stations which were equipped with all the necessary appliances and plant. In future, we shall have 46 frontier stations, which are not at present equipped with the indispensable installations for transit service, and the majority of which cannot be reconstructed for the purpose.

Maintenance of Track.

Before the war the condition of our lines and of their installations was above reproach, and our trains ran at the maximum speed allowed by law over the whole system, namely at 50 to 100 kms an hour on the main lines, and 40 km. an hour on branch lines and local lines.

The maintenance of the track is at present fraught with serious difficulties on account of the lack of sufficient sleepers, a result of the Treaty of Peace, which deprived us of 86 % of our forests.

As the renewal of sleepers, which was to have been carried out next spring, is not possible, on the required scale, in present circumstances, we are forced to reduce considerably the speed of the trains, particularly on the branch lines.

We require some 700,000 sleepers for the current year. In order to procure them, we even have to purchase trunks of trees. We are also ourselves exploiting certain forests in order to obtain the necessary sleepers.

In spite of these efforts, we cannot count on providing more than half at most of the above quantity from our present territory ; the rest must be imported from outside, chiefly from Austria.

As regards material for iron super-structures, it is probable that this year, again, we shall have no difficulty in obtaining a sufficient quantity for the factories still belonging to our country should be able to supply the 80 to 100 wagons of iron products necessary.

As regards materials essential for the maintenance of the road-bed, we particularly need timber and scaffolding-pins.

Lastly, the lack of timber, material for roofing, glass and paint makes it very difficult to maintain our buildings in good repair.

Requirements in Rolling Stock.

(a) Locomotives.—In order to cope with traffic of the same volume as on June 30th, 1914, within our present frontiers, we should require :

1582 1st.class locomotives.
665 2nd-class locomotives.

in all : 2,247 locomotives.

This number of locomotives is moreover due to us in accordance with the decisions of the Commission.

Of the stock of locomotives which we possessed on June 30th, 1914, and of the locomotives purchased between that period and November 3rd, 1918, we possess at present :

1,132 1st-class locomotives.
580 2nd-class locomotives.
5 3rd-class locomotives.

in all : 1,717 locomotives.

We are short, therefore, of :

450 of the 1st class;
85 of the 2nd class;

in all : 535 locomotives.

These 535 locomotives should be restored to us by the Rumanians out of the 1,140 locomotives which they took from us and removed from the country.

Of the above-mentioned 1.717 locomotives at present in our possession, 226 of the 1st category and 50 of the 2nd category were acquired by us from 40 to 50 years ago. These machines are old, of an obsolete type, and of very small capacity ; moreover, they are in such a deplorable condition that very soon it will be impossible to use them any longer. If the Rumanians do not give us back the 532 locomotives, we shall have to replace them by new ones.

(b) Passenger Carriages.—On June 30th 1914, we had 8,846 passenger carriages. We now possess 2,348. In spite of the unwearying efforts of our repair-sheds, 700 of this number are still undergoing repairs.

The Rumanians selected for removal the carriages which were in good condition, leaving us damaged carriages of which the interior fittings had been stripped. Owing to the lack of materials the repair of these carriages is proceeding very slowly.

In order to cope with the present passenger traffic we shall require about 3,350 carriages (0.47 per km.).

In consequence there is, out of the 2,348 carriages, a shortage of 1,000 passenger carriages. We need these all the more urgently because the Rumanians have taken away our new coaches, which carried the largest number of passengers, and have left us worn out carriages of an old type. The majority of the latter—say some 300—are so worn out that it is more economical to take them off the rails and scrap them than to repair them.

We do not know yet how many carriages the Rumanians will give us back, as a result of the mediation of the Commission, or of what quality they will be ; but it is certain that we cannot develop our passenger traffic, if we wish to, unless we can get new carriages.

(c) Goods Wagons.—In 1913 (that is, in the last year before the war) the Hungarian State Railways carried 37,000,000 tons, of which 16,000,000 are the quota of the territory which remains to us under the Treaty of Peace. These 16,000,000 tons correspond to 43 % of the total quantity of goods conveyed, and since our rolling stock amounted on November 3rd, 1918, to 104,757 trucks, we shall still require 43 %.

If we take into consideration the type of goods carried—as we must for the selection of the types of trucks,—we find we should need 45 % of our previous quota, which corresponds to 47,140 trucks.

On the other hand, when the general census of rolling stock was made on April 8th, 1920, on all railways within the lines of demarcation, there were only 18,832 "M. A. V." wagons in non-occupied Hungarian territory, which means that we now require 28,308 trucks.

Although the Allocation Commission in Vienna has not yet determined the final allocation of trucks, we can be certain, even now, that on the basis of the census returns of the trucks seized and unjustly confiscated by the States which have succeeded to the Austro-Hungarian Empire, we shall not

receive restitution of the quantity which we have legitimately claimed. In order that we may have rolling stock available in time to cope with the expected traffic, we must procure a larger quantity of trucks ; but it is essential that we should be in possesssion of our full number of vehicles because those which we are using at present cannot all be fairly reckoned as efficient rolling stock, seeing that 17 % are in need of radical repairs.

Further, as a result of the depreciation of our money, we have to restrict to a minimum the use of foreign trucks; and since our enemies have carried off our best trucks, leaving us the worst, we shall be obliged very shortly to throw the greater part of our vehicles out of use and replace them, provisionally, by at least 15,000 new ones.

Works under Construction.

The following are the most important works at present in course of construction :

(1) Enlargement of the hydraulic establishment of the North with pneumatic wells, Fischer system, and technical equipment.

(2) Enlargement of the briquette factory at Rakes.

(3) Enlargement of the sand-brick factory at Dunakeszi-Alag :—a second complete compressing plant and a third boiler for drying.

We can only supply figures to represent the importance and cost of these works, which are required in connection with traction, when conventions have been arranged with the adjoining States with regard to traffic and transit stations, and when we are allowed to run our engines into the depôts and terminal stations. These agreements are indispensable in order that we may know at what points on the new frontiers we are to construct new engine depôts, or—it may be—only turntables and water-stations ; and whether we should—at certain points—completely abolish connecting tracks which are unnecessary or even injurious to ourselves.

From this point of view we ought to try to designate as frontier stations those which are suited for the purpose by their equipment, or which could be rendered suitable to meet the demands of the service at a very small cost.

What the result of this will be and what success it will meet with we cannot foresee. We are therefore only able to estimate the cost by making certain assumptions.

Assuming that, with the frontiers as they have been recently drawn, it will prove impossible to reach an agreement of the kind suggested above in regard to these transit stations, we should have to create establishments for traction, with accessory buildings (dwellings hutments, etc.), at 12 stations on local lines and at 10 stations on the main lines, which would involve an expenditure of about 60 million crowns, whereas the creation of traction depots at the transit stations on the main lines would cost about 350 million crowns.

Assuming that the frontiers which are to be defined are permanently fixed, we should have to convert and enlarge some of the stations which

we are now obliged to use as transit stations, but which were never designed for frontier stations. Salgetarjan, Gyékényes, Sáteraljanjhely, etc., are stations of this kind.

The conversion of these stations to make them conform to the requirements of transit stations might cost another 25 million crowns, so that if the present frontiers are to remain definitely fixed, we must allow a sum of 435 million crowns for the creation of technical traction establishments at the frontier stations.

Workshops.

We have already eight workshops for the repair of rolling stock.

The workshop at Debreczen—almost entirely plundered by the Rumanians—has been put in order at a great cost, and we have, as far as was possible, replaced the lost plant by fresh equipment obtained from abroad. The shortage of plant in this workshop, as in the main shops of Istvantelek and the North, was due to its being plundered by the Rumanians.

Owing to the introduction of piece work in the month of November last, and when the equipment of the shops had been completed as mentioned above, the potential output of our workshops increased considerably above our expectations. This is well illustrated by the following examples.

In the period between the collapse of the "dictatorship of the proletariat" and the introduction of the system of piece work we effected an average of 24 important locomotive repairs per month. In September 1920 we repaired 96.

This output has fallen to 57 because the greater part of our locomotives are in need of boiler repairs. But the value of our output is nevertheless not less than for September.

In regard to the repair of carriages, the following results have been obtained :

In the period which followed the "dictatorship of the proletariat" we overhauled, on an average, 100 passenger coaches per month ; 454 passenger coaches were overhauled in May, and 234 in November last.

This decreased output is due to the fact that, in recent months, the passenger coaches could not be transported in sufficient numbers to the workshops.

As regards goods wagons, we overhauled an average of 240 per month in the period after the fall of the "dictatorship of the proletariat", and at present we are overhauling about 1,230 per month.

It was due to this satisfactory development that, on the one hand, we were able to meet the requirements of our own traffic, and that, on the other hand—in order to create economic relations with Serbia and, above all, to ensure the import of food-stuffs from Serbia—we were able, in the month of April 1920, to conclude advantageous contracts for the repair of 250 Serbian locomotives, and in September of the same year—with the assistance of the Hungarian carriage-building shops—for the repair of 500

passenger coaches and 2,000 goods trucks, without endangering our own traffic or sacrificing the ability to supply it with sufficient rolling stock for its requirements.

The completion of the delayed overhauling of locomotives and the gradual repair of the interior fittings of our passenger coaches is of special importance in order to give occupation to our personnel and provide work for our shops in the future.

As regards the overhauling of locomotives, this should be finished, in the least favourable circumstances, by the end of the year 1923—that is to say, the repairs of all recent locomotives after the regulation 8-years service and of old locomotives after the regulation 5-years service should be completed by that date.

In fact, we intend to undertake the general overhauling, without further delay, of 1,254 locomotives. We may be able to speed up our monthly output of work of this kind by reorganising the work, and re-classifiing the workmen. After January 1921 we may raise the total, by this means, to 47 per month in place of 27 per month as at present. We may also, in this way, finish overhauling the 1,254, engines which are in arrears (including those which will have meanwhile become due for overhauling before the end of 1923, without having recourse to private industry. We are especially reluctant to have recourse to private industry for the overhauling) of these locomotives because, apart from the exorbitant expense involved, we have need of this work to provide occupation for our regular workmen. The primarily indispensable condition of the execution of this work is the provision of the copper plates for repair of fire-boxes. We believe that, as a result of the steps which we have taken, we have succeeded in eliminating the danger of a lack of material.

The interior reconstruction of passenger coaches is mainly retarded by the extraordinary difficulty of procuring the necessary materials—leather and stuffs—and by their exorbitantly high price, which means that this work is dependent on the economic situation of our country. Nevertheless, we are in hopes that our equipment will enable us to satisfy a large proportion of our requirements.

Passenger Traffic.

On June 15th, 1914 that is before the war, the number of train-kilometers covered by passenger trains on the " M. A. V. " Lines was 181,190 kilometres. During the war our passenger traffic continuously diminished and during the period which preceded the Revolutions it became very inconstant, fluctuating from day to day.

On the present M. A. V. railway system the number of kilometres covered daily by passenger trains was :—

10,926	km.	for	February 1920.
12,383	»	»	March 1920.
13,815	»	»	April 1920.
18,617	»	»	May 1920.

20,340 km. for June 1920.
21,528 » » July 1920.
22,657 » » August 1920.
23,212 » » September 1920.

Regular passenger traffic has been almost entirely re-established by the aid of time-tables adapted to the needs of the service, and by the institution of through passenger trains. The departure and arrival of our passenger trains at the termini was almost exacly according to schedule during last autumn, whereas during the same period of the previous year, when disorder was prevalent, the trains were habitually five or six hours late.

The through trains recently instituted on the Budapest-Vienna line have provided us with rapid and convenient connection with the countries of Western Europe.

The best proof of the need for these trains is the extent to which they have been used, in spite of the considerable increase of fares. These trains brought in 6 to 7 million crowns in the month of October and 8 million crowns net in the month of November.

The possibility of further improvement in the passenger service depends entirely on the quantities of coal available.

In November last, the number of kilometres traversed daily by our passenger trains was still 22,777 km. But as the coal situation became worse, we have been forced since December 1920 to reduce considerably the number of trains travelling on Saturdays and Sundays, so that the present number of kilometres traversed daily is only 20,990 km.

Rates.

The increases since the year 1913 in the rates on the Hungarian State Railways were as follows :

Date introduced	Nature of Increase	Percentage of Increase
	(a) Passenger and Luggage Rates.	
November. 15th 1917	Passenger rates	70-120 %
	Luggage, dogs and express luggage rates	100 %
June 15th, 1919	Passenger rates, luggage, dogs and express luggage rates .	200 %
August 11th. 1920	Passenger rates, luggage, dogs and express luggage rates .	400 %
	(b) Goods Rates	
February, 1st 1917	War tax	30 %
January. 1st 1918	1st, class incomplete loads, large goods ; 3*a* and *b*, exceptional rates	50 %

Changes in the Classification of Goods :

Date introduced.	Nature of Increase.	Percentage of Increase
September, 1st 1918	Coal	40 %
	Other goods	
	Supplements	70 %
June, 15th 1919	General increase (for all goods without exception)	200 %
August, 11th 1920	New general increase.	300 %

Decrease of Rolling Stock.

At the commencement of the war the Hungarian State Railways had about 3,900 locomotives, 70 royal coaches and saloon coaches, 8,000 passenger coaches, 3,500 vans and mail vans, and 84,000 goods trucks. This rolling stock was constantly increased, as far as was possible, even during the war, so that on September, 1st 1920, our total stock of locomotives was 5,010, of coaches 8,846 and of goods trucks 105,300 (on December, 20th 1920, we had, according to our lists, 5,060 locomotives).

As a result of the enemy occupation which occurred during the Karolyi Revolution, and particularly as result of the Roumanian requisitions in the second half of 1919, our actual rolling stock is at present considerably lower than the figures given in the lists.

Indeed, at the beginning of the present year, we only had 1,700 locomotives of which 62 % were unusable and in need of extensive repairs.

Of the 3,249 locomotives which we had lost, about 2,000 are in the hands of the Rumanians, 500 have remained on the Croatian lines and 400 others are in the territory occupied by the Serbs ; 233 are in possession of the Czechs, and 32 are held by the Ukrainians, Italians and Austrians ; 50 more had to be surrendered to the Serbians in accordance with the conditions of the Belgrade Armistice, and the whereabouts of 60 others is unknown.

Thanks to the intense activity of our workshops, the number of locomotives which could be used, which had fallen to 430 at the end of 1919, had risen by September 1st, 1920, to 934. (In December we had 958 locomotives fit for service.) The number of locomotives under repair has thus fallen to 816, that is 45,8 % of the original 62 %. (At the present time there are 834 locomotives under repair that is, 45,53 %.)

Moreover, we have lent 10 locomotives to the Serbians, 28 to the Czechs, 5 to local railways—in all, 43 locomotives.

Of the 8,846 passenger coaches shown in the lists, we have only 2,246 left, according to the census of April 8th, 1920, of which 28 % that is, 633 coaches are in need of considerable repairs. (The present percentage of repairs is 27 %.)

As regards goods trucks, the situation is equally unfavourable. In particular, of the 105,300 trucks shown on the lists we have only 17,070 available for service, according to the returns of the census of April 8th, 1920, of which 27 %, *i.e.* 4,705 trucks, are in need of repairs.

Apart from these 17,070 trucks marked as the property of the M.A.V., we have also at our disposal 20.871 foreign trucks. This figure has, however, since decreased by about 5,000, because a proportion of trucks belonging to private railways or to the German Empire has already been sent back, in accordance with agreements concluded in the interval. (The percentage of repairs of goods trucks is at present only 17 %.)

The result of the census of rolling stock, which took place September 12/14th, 1920, is not yet known. The Committee of Circulation at Vienna is engaged on this matter.

Personnel.

The number of personnel of the Hungarian State Railways for the period from 1914 to the present day is shown in the following table :—

	High Officials	Railway Servants	Workmen	Total
In 1914	8,059	60,833	94,355	165,247
1914-15	7,765	59,265	50,272	125,302
1915-16	7,651	67,171	53,356	128,178
1916-17	7,729	68,642	60,310	136,681
At the end of 1918	7,681	69,553	66,161	143,395
In June 1919	4,572	33,139	—	—
In September 1919	4,421	23,971	24,164	52,356
At the present time	5,028	33,300	34,930	73,258
Refugees[1]	1,394	8,611	—	10,005

Coal.

We are still faced with grave difficulties in the provision of necessary materials from the working of railways and workshops. It will be sufficient to refer to the general shortage of materials, the extraordinary decrease in the value of money, and the serious obstacles which impede normal traffic with the States which surround us.

These economic and political difficulties have a particularly paralysing effect on the supply of wooden materials (for the workshops, for the upkeep of the track and for heating).

In peace time the collieries situated in the territory of the now dismembered Hungary produced 20,000 tons of coal a day, whereas the production in November 1920 only averaged 14,500 tons a day—, that is,

[1] On December 23rd, 1920, the number of wagons occupied by refugees was 2,272.

a decrease of 27,5 % compared with the peace-time production. Of this reduced quantity, an average of 5,000 tons a day is placed at the disposal of the Royal Hungarian State Railways for the haulage service, for operating the railways, for heating and for the increased traffic during the last months.

The quantities placed at our disposal by the National Coal Committee are not sufficient to meet the demands of present traffic without permanent restrictions, which cause great difficulties.

For the resumption of ordinary train traffic we require 141,000 tons a month of standard coal (of 4,500 calories).

Seeing that only 115,000 tons monthly are placed at our disposal for the above-mentioned purpose, we are still short of 26,000 tons of coal a month.

In peace time, during the year 1913, the quantities of coal used for locomotives were produced as follows:

1. 76 % from the national collieries.
2. 5 % from Ostrau, Dombrau and Karwin.
3. 19 % from Silesia and Prussia.

In peace time we did not make exclusive use for traction of the coal which came from the Tata collieries, since this coal — being light, with a tendency to scatter sparks, could not be used economically except together with the less brittle coal from the collieries of the Pecs districts. For this reason the immediate liberation of the latter collieries would be of the greatest possible service to our railway system.

It is impossible to run heavily loaded trains at high speeds exclusively with coal from the Hungarian fields, and consequently we require a tolerably large supply of foreign coal (about 6,500 calories), particularly as we have lost the collieries of the Zsil Valley.

For the resumption of normal traffic we want about 30,000 tons a month of highg-rade foreign coal, over and above the quantities put at our disposal.

Financial Situation.

With regard to the financial situation of the Hungarian State Railways, we can supply the following information. The balance sheets of our last financial years were as follow :—

1. Before the war:

	Financial Years		
	1911	1912	1913
	Crowns	Crowns	Crowns
Total receipts	412,618,423	447,799,635	459,284,103
Total expenses.....	303,401,411	337,667,230	368,770,395
Net profit	109,217,012	110,132,405	90,513,708
Percentage	73,53 %	75,41 %	80,29 %

2. During the war:

	Financial Years			
	1914-15	1915-16	1916-17	1917-18
	Crowns	Crowns	Crowns	Crowns
Total receipts . . .	474,395,888	697,042,593	650,487,067	800,014,500
Total expenses . .	313,970,879	402,429,765	519,994,037	773,580,601
Net profit	160,425,009	276,612,828	130,493,030	106,433,889
Percentage	66,18 %	59,26 %	79,94 %	87,01 %

3.—We cannot yet supply precise details for the years since the war; it is impossible to complete the accounts for the years 1918-19, 1919-20, because the work of the accountants is in arrears owing to the changes in the general situation of the country and the continuous troubles caused by the enemy occupations during this period.

But such provisional figures as are available for these two years point to a considerable deficit.

As regards the year 1920-21, only the provisional results for the period July-December 1920 are known and these amount to 1.400.696.000 crowns.

The expenses for the period July-November 1920 were	780,346,240 crowns
And those estimated for the month of December 1920 amount to	186,000,000 »
in all: . .	966,346,240 crowns

From this it can be seen that the revenue obtained in the first six months of the financial year 1920-21 exceeds the expenses for the same period by 434,349,760 crowns.

This surplus is due to the increase in the rates which has been in force since August 1920.

But, having regard to the fact that the reconstruction of the track and the necessary working repairs of our railways — which are in a very dilapidated condition—will involve very heavy expenditure during the rest of the financial year, and having regard also to the very high wages we have to pay and the exorbitant prices of materials, we cannot expect a higher rate of profit for this financial year (1920-21).

B. Position of the Railways in the South (Südbahn).

As regards the position of the Hungarian lines of the Southern Railway Company before the war, after the Armistice, and at the present time, we have the honour to furnish the following information.

The data relating to questions connected with the length of the lines, the condition of the rolling stock, the amount of traffic, the increase in

the rates, the consumption of fuel and other materials, the number of the employees, and the financial situation, are given in full detail in Annexes I to X.

With regard to the facts contained in the above-mentioned Annexes we would add the following observations:

The figures for open and covered goods trucks must be considered as being part of one common supply for the whole of our lines. The figures for the rolling stock, given in Annex V, for the lines of the Hungarian railway system were worked out having regard to the length of these lines in kilometres.

The figures regarding repairs of rolling stock show at present a tendency to improvement; this does not, however, hold good as regards materials the dearth of which is a cause of serious difficulties and an obstacle to work under normal conditions. According to Annex VI, 18 locomotives have been for a long time awaiting important repairs, but our only repair shop at Szekesfehervar is unable to receive them for this purpose owing to the congestion of work and lack of material.

The state of affairs is the same as regards repairs of rolling stock; it is even aggravated by the great difficulties due to the long time occupied in repairing trucks and carriages which arrive at the workshop with many serious injuries and stripped of their internal fittings.

Beween August 3rd, 1919, and November 23 of the same year, the Rumanians deprived us of the following rolling stock:

Carriages marked D. V.

(1) Passenger carriages and vans	41	97
(2) Tank trucks (Reservoir trucks)	56	
(3) Goods Trucks: (*a*) covered	1,175	1,838
(*b*) open	663	
Total		1,935

Carriages marked G. K. B.

(4) Goods Trucks: (*a*) covered	10	42
(*b*) open	32	
Total number of carriages marked D. V. and G. K. B.		1,977

Taking the traffic of the year 1914 as a basis of calculation, and having regard to the exigences of the present traffic, our requirements in locomotives and rolling stock are as follows:

Our traffic in 1914, over a system of 704.1 kilometres, required a total number of 164 locomotives. Deducting 12 %, the proportion which must be allowed for those under repair, we had, actually, an available total

of 144 engines. To obtain the same results on the present railway system of 566.3 kilometres, we should require 166 locomotives.

With the frontiers of Western Hungary in the positions fixed by the Treaty of Peace, the length of the railways in kilometres only worked out at 539 7 kilometres ; but in view of the technical requirements of the traffic and the working of the lines, our Administration will no doubt have to arrange for train haulage as far as Wiener-Neustadt. The present strength of locomotives amounts to 152. Assuming 43 % of the machines to be under repair, there will remain at our disposal an available total of 87 locomotives.

If it should prove possible, by utilizing all available means, to reduce the proportion of locomotives under repair to 30 %, and to overcome to some extent the difficulties due to lack of material, we could have an available total of 106 locomotives fit for service. The shortage would then amount to 10 locomotives, the purchase price of which may be reckoned, in present circumstances, at approximately 80,000,000 crowns.

In order to provide for the normal working of this traffic, it would also be necessary to enlarge the locomotive establishments and the repair shop, and to adapt them for work on a much larger scale. These alterations are specially required in view of the intensive and continuous use which was made of these establishments during the war without anything having been done to enlarge them.

As regards the data concerning the shortage of rolling stock, we would point out that, in view of the difficulties which existed as long ago as 1914, the present total of passenger carriages would suffice for the requirements of a restricted traffic—making allowance for the fact that we have been deprived of certain lines—but if we wish to eliminate all the difficulties which existed in 1914 (reduction of the length of shifts, etc.), we should require, to operate traffic of the same intensity as in 1914, at least 100 passenger carriages ; for it must be remembered that the paralysing effects of lack of coal will, for a long time to come, cause great difficulties, even after the resumption of normal traffic ; and also that the amount of repairs still shows a tendency to increase, in consequence of the lack of raw materials and of the diminished output of labour.

The purchase price of these carriages amounts to 1,000,000 crowns per carriage, *i.e.*, in all 100,000,000 crowns.

For the requirements of goods traffic, taking the traffic statistics of 1914 as a standard, and having regard to present difficulties—the dearth of coal, the long duration and the large amount of repairs owing to the lack of raw materials and of labour—we should require at least 150 goods trucks in order to maintain normal traffic.

The purchase price of these trucks amounts to 500,000 crowns each, making a total of 75,000,000 crowns.

* * *

Annex IV, which gives the cost of the new frontier stations, has been drawn up on the assumption that it will be necessary to lay three new

lines of rail, and to construct a turn-table for each of the three stations, and finally to construct three new reception offices with an area of 300 square metres each.

It should be pointed out that, according to the provisions of the Treaty of Peace, the frontier stations of our railway system are as follows :

Lövo, near the Austrian frontier ; *Murakeresztur* and *Barcs*, near the frontier of the Serb-Croat-Slovene Kingdom. Owing to the situation resulting from the present occupation, the station of Babocsa must be considered as the frontier station in the direction of *Barcs*.

With the exception of the station at Barcs, the above-mentioned stations are unsuited for the work of frontier stations. In the first place, they do not possess the necessary installations. The small width of the tracks does not allow sufficient time for the trains and loads to be shunted. There are no turn-tables for locomotives. Neither at Lövo nor at Babocsa are there coaling-depots, goods-sheds or sidings for shunting which could be used for carrying out customs formalities. Furthermore, unless extensive new works can be undertaken, these stations will possess neither accommodation for the personnel of the locomotives and trains, nor offices and quarters for the officials and employees of the public services.

* * *

As regards the supply of coal, the situation, though changing from day to day, remains unfavourable. The administration, allotment and distribution of coal is carried out under the supervision of the Government ; it is therefore quite impossible for us to exercise any influence upon our supply of coal, which depends entirely on the Government Commissioner.

At present, the quantities placed at our disposal are calculated on the basis of the minimum number of trains running, but we have no guarantee that we shall actually receive these quantities, and, in consequence, we are compelled to suspend the traffic at frequent intervals, and sometimes even without notice, since our supply of coal never exceeds the quantity which is required for the needs of one day. In addition, the inferior quality of the local coal has a paralysing effect on the running of the trains and compels us to extend the time taken on journeys and to reduce our loads. It is only with the coal obtained from abroad that we can operate our express trains and our special fast trains..

STATEMENT

of the Kilometric Lengths of the Railway Lines of the Southern Railway operated by the Directorate of Budapest, according to the Returns for October 31st, 1918, and for the present day.

Serial No.	Lines	Length of Lines-Kilometres				Remarks
		Oct. 31st 1918.		Present day		
		In Construction.	In working.	In Construction.	In working.	
	A. — *Lines belonging to the Southern Railway.*					1. In calculating these distances the present lines of demarcation have been made use of, and not the frontiers fixed by the Treaty of Peace.
1.	Frontier/Wiener-Neustadt/Nagykanizsa ..	193,273	192,811	193,273	192,811	
2.	Frontier/Csaktornya-Budapest	278,148	277,989	235,807	233,808	
3.	Szekesfeherwar-Komarom	80,236	81,907	80,236	81,907	
4.	Murakeresztur-Bares	71,487	71,388	68,318	58,339	
5.	Frontier/Fiume	2,387	3,255	—	—	
6.	Frontier/near Zapresic-Sziszek-Goldova ..	76,772	76,772	—	—	
	Total.....	702,303	704,123	577,634	566,865	2. Lengths of lines at present under construction have been calculated as far as the line of demarcation, whereas the lengths of line at present being worked are only calculated as far as the unoccupied frontier stations because our trains do not run beyond these points.
	B. — *Foreign Lines operated by the Southern Railway.*					
7.	Bares-Pakrac	93,640	93,647	—	—	
8.	Suhopolje-Slatine	17,297	16,939	—	—	
9.	Bastaji-Koncaniza	12,857	12,587	—	—	
	Total.....	123,794	123,173	—	—	
	Total of Nos. 1 tc 9	826,097	827,295	577,634	566,865	

Annex II.

Southern Railways. Directorate of Budapest.

NUMBERS OF PERSONNEL.

Classification	1914	1918	1921
Officials	470	504	463
Female employees	32	43	63
Subordinate employees	820	885	827
Subordinate Officials (Clerks)	1,324	1,360	1,194
Day labourers	100	119	100
Labourers	3,828	3,660	2,856
Total	6,374	6,571	5,503

Annex III.

BALANCE SHEET.

(Hungarian Railway System)

Financial Year	Receipts	Expenditure	Profits
	In Crowns	In Crowns	In Crowns
1913	27,558,836,68	18,422,737,80	9,136,098,88
1914	27,122,968,27	17,588,247,61	9,434,690,66
1915	31,938,535,06	18,849,237,10	13,089,297,96
1916	37,960,378,11	24,048,421,76	13,911,956,35
1917	44,607,057,34	31,737,779,98	12,869,977,36
1918	65,328,880,54	49,963,337,64	15,365,554,90

Note.—The balance sheets for the financial years 1919 and 1920 are unknown to us as they were drawn up separately for the Hungarian railway system. In view of the restricted circulation of the trains, due to the suspension of traffic with the neighbouring States for almost two years, the receipts have shown a considerable reduction; the expenses, on the other hand, have increased to such an extent that the profits of the previous years have been entirely absorbed, with the result that we have been forced to ask the Government for periodical advances. The total of these advances amounts at present to 132 millions of crowns.

Annex IV.

Southern Railway. Directorate of Budapest.

STATEMENT

of the Expenditure necessitated by the Construction of New Frontier Stations.

Serial No.	Structures and Installations	Amount	Total
	I. *At the Station of Murakeresztur.*		
1.	Enlargement of the railway station area for three new lines of rail and construction of buildings	1,300,000	
2.	Widening of the level crossing for three tracks.....	300,000	
3.	Widening of the covered viaduct by three metres for three lines of rail.....	1,000,000	
4.	Construction of new tracks (Superstructure).....	10,400,000	
5.	Construction of a new turn-table of 20 metres	3,500,000	
6.	Construction of a new forwarding office with two floors	5,000,000	
7.	Renovation of the present safety arrangements by new signal-boxes	3,500,000	
8.	Unforeseen expenses	3,000,000	
	Total.....		28,000,000
	II. *At the Station of Lövo.*		
9.	Enlargement of the railway station area as in "I"	1,400,000	
10.	Widening of the covered viaduct by 0.95 metres for three new tracks.....	500,000	
11.	Diversion of the entrance way to the warehouse and the loading platform.....	1,000,000	
	Total.....		
	Carried forward.....	2,900,000	28,000,000

ANNEX IV *(continued)*.

Serial No.	Structures and Installations	Amount	Total
	Brought forward	2,900,000	28,000,000
12.	Construction of new lines (Superstructure)	9,700,000	
13.	Construction of a new turn-table of 20 metres	3,500,000	
14.	Construction of new forwarding office of two floors	5,000,000	
15.	Shifting the present goods shed and loading platforms	500,000	
16.	Shifting the present cantilever bridge	200,000	
17.	Shifting the present cattle platform	100,000	
18.	Renovation and enlargement of the present safety arrangements with new signal-boxes	2,000,000	
19.	Unforeseen expenditure	2,100,000	
	Total		26,000,000
	III. *At the Station of Babocsa.*		
20.	Enlargement of the railway station area as in "I"	800,000	
21.	Construction of new lines (Superstructure)	7,300,000	
22.	Construction of a new turn-table of 20 metres	3,500,000	
23.	Construction of new forwarding offices with two floors	5,000,000	
24.	Renovation and enlargement of present safety arrangements with new signal-boxes	2,500,000	
25.	Unforeseen expenditure	1,900,000	
	Total		21,000,000
	Total I to III ..		75,000,000

ANNEX V.

Southern Railway. Directorate of Budapest.

STATEMENT

of Rolling Stock and Repairs according to the Returns of October 31st, 1914, October 31st, 1918, and October 31st, 1920.

Nature of Vehicles	Number of Vehicles					
	Fit for Service			Under Repair		
	1914	1918	1920	1914	1918	1920
				%	%	%
Saloon cars	5	4	4	9.5	12.5	24.5
Passenger coaches	391	383	327	38	48	81
Vans	104	108	56	10	16	17
Mail-vans	8	8	8			3
Luggage vans	56	56	1		1	
Breakdown wagons	6	6	6			
Heating vans	2	2	2	3,9	5	26
Horse boxes	17	17	14			1
Coal trucks	42	53	52			2
Covered goods wagons	1,060	1,049	848	32	34	242
Goods Trucks	1,152	1,136	920	65	71	248

Annex VI.

Southern Railway. Directorate of Budapest.

STATEMENT

of Locomotives and Locomotive Repairs according to the returns of October 31st, 1914, 1918 and 1920.

		Locomotives					
		Fit for service			Under repair		
War Marking	Series	1914	1918	1920	1914	1918	1920
II.275	106.206	13	13	13	2	4	9[1]
-	306						
—	17 a	10	10	1	1	3	
—	17 c	23	23	21	3	5	7
II. 225	18	12	12	7	2	3	4
II. 100	4	4	4	4	1	1	1
III. 400	109	6	9	9		4	5
-	429	6	6	6	1	3	4
-	60	9	9	9	2	4	3[2]
III. 275	29	60	60	53	8	24	22[3]
375	32 c	23	23	18	2	8	6[4]
400	32	6	6		1	3	
225	32 d	8	8	3	1	3	2
Total...		180	180	144	24	35	63
					14 %	33 %	44 %

The locomotives of the Bares-Pakrack railway, the lease of which has been acquired.

VII. 225	32 d	11	11	8	1	4	3
Grand Total...		191	191	152	25	69	66
					13 %	36 %	43 %

[1] 6 awaiting repair. [2] 2 awaiting repair. [3] 9 awaiting repair. [4] 1 awaiting repair.

Annex VII.

Southern Railway. Directorate of Budapest.

STATEMENT

of the Results of Traffic in the period from January 1st to October 31st, 1913, 1918 and 1920.

Item	From the 1st January to 31st Oct.		
	1913	1918	1920
Number of trains	44,504	32,240	7,965
Number of official trains	3,350	2,333	1,443
Total	47,854	34,573	9,407
Number of train-kilometres	3,872,318	3,129,850	838,333
Number of official train-kilometres	275,362	226,556	151,902
Total	4,147,680	3,356,406	990,235
Gross load (per 1,000 kilometric tons)	1,037,933	1,336,880	261,369
Gross official load (per 1,000 kilometric tons)	71,535	96,771	47,358
Total	1,109,468	1,433,651	308,727
Net load (per 1,000 kilometric tons)	296,079	291,033	57,625
Net official load (per 1,000 kilometric tons)	18,361	21,066	10,447
Total	314,440	312,099	68,072
Tons transported	3,068,516	2,862,319	559,326
Official tons transported	218,928	206,945	101,350
Total	3,287,444	3,069,264	660,676
Average gross load of trains in tons	268	426	311
Average gross load of official trains in tons	260	428	312
Average net load of trains in tons	77	93	70
Average net load of official trains in tons	67	93	69

Annex VIII.

Southern Railway. Directorate of Budapest.

Traffic—Passengers and Luggage.

Date and proportion of the increase in rates.	Increase of a 100-heller charge (in hellers)						
	Fast trains			Slow trains			Luggage
	I.	II.	III.	I.	II.	III.	
1st Feb. 1917 . . .	112	131	120	110	125	132	125
Increase	12 %	31 %	20 %	10 %	25 %	32 %	25 %
15th Nov. 1917 . .	221	200	191	184	159	147	167
Increase	97 %	53 %	59 %	67 %	27 %	11 %	33 %
15th June 1919 .	663	600	273	562	477	441	500
Increase	200 %	200 %	200 %	200 %	200 %	200 %	200 %
20th July 1920 . .	1,325	1,200	1,146	1,104	964	882	1,500
Increase	100 %	100 %	100 %	100 %	100 %	100 %	100 %
22nd August 1920	1,989	1,800	1,719	1,656	1,431	1,323	2,500
Increase	50 %	50 %	50 %	50 %	50 %	50 %	150 %

The reductions must depend on the improvement of the economic situation, apart from the effects of an increase in the purchasing power of our money. An improvement in this respect must be hoped for, primarily as a result of the resumption of free trade and direct international traffic.

Annex IX.

Southern Railway. Directorate of Budapest.

Goods Traffic by Slow Trains and Fast Trains.

Date and proportion of the increase of the charges.	Increase of s 100-heller charge (in hellers)				
	F. T. Full rate	F. T. reduced rate	I class	II class	Other classes
1st February 1917. F. F. Reduced rates 30% Other rates 25%	125	130	125	125	125
1st January 1918. F. F. and 1st class 50%	188	195	188	125	125
1st September 1918. General increase and surtax 70%	345	357	335	228	221
15th June 1919. General increase 200%	1,036	1,071	1,005	684	663
20th July 1920. General increase 100%	2,070	2,142	2,010	1,368	1,326
22nd August 1920. General increase 100%	4,140	4,284	4,020	2,736	2,652

Note :— An improvement cannot be expected except by slow degrees and only :

1) when the frontiers have been definitely fixed.
2) when free commerce and direct traffic has been resumed.
3) when the purchasing power of money has increased.

Annex X.

Southern Railway — Directorate of Budapest.

STATEMENT

of Passenger Traffic in 1914, 1918 *and* 1920.

Months	Number of passengers		
	1914	1918	1920
January	228,803	332,075	349,355
February	216,034	338,505	324,760
March	271,892	411,116	392,598
April	314,176	398,056	335,057
May	319,178	447,767	368,388
June	358,163	499,604	382,644
July	335,993	565,736	419,661
August	225,420	678,961	431,067
September	260,778	611,738	327,857
October	286,541	445,362	305,849
November	294,130	476,776	236,085
December	306,835	334,692	238,406
Total...	3,447,943	5,540,388	4,111,727

The increase in the number of passengers corresponds to the movements *en masse* which have taken place since the end of the war.

The increase in comparison with the returns for passenger traffic in 1914 is to be accounted for partly by the marked rise in popularity the baths of Lake Balaton, and on the other and, by more frequent journeys for business purposes.

C. — The Position of the Gyor-Sopron-Ebenfurt Railway.

General Information.

1. (Length of line.)
2. (Number of personnel.)

The line worked by the Gyor-Sopron-Ebenfurt Railway Company (Limited) which owns the railway, extends from Gyor *via* Sopron as far as Lajtaujfalu, *i.e.*, to the frontier.

At Gyor it connects with the Hungarian State Railways, and at Ebenfurt it is in contact with the Austrian State Railways; at Sopron, on the other hand, it communicates, by a connecting line, with the Southern Railway.

The length of the above-mentioned main line is 120,36 km. In addition, we operate the local line of Ferte, which starts from Celldömölk (on the State railway line), crosses the Gyor-Sopron-Ebenfurt line at Eszterhaza, and again reaches the State railway system at the station of Pandorfalu. The length of this line which is being worked is 107,65 km. The total length of the lines being worked is therefore 228,01 km.

The principal stations on the main line are Gyor, Csorna, Kapuvar Garta, Esterhaza, Sopron (office of the Directorate) Vulkapordany and Laytaujafalu. Practically the whole of these lines are laid over flat country.

The Gyor-Sopron-Ebenfurt Railway, and also the local branch line of Ferte, are administered and operated by the company itself. The offices of the company and of the General Directorate are at Budapest ; the working of the line is carried out by the Directorate, which has its office at Sopron.

The numbers of personnel are as follows : 54 higher grade officials, 153 employees, 240 minor officials, and 403 day labourers, workmen, etc., making an average of 3.76 persons per km.

No change has taken place since 1913, either in the length of lines being worked or in the personnel employed.

Maintenance of the Line.

The present condition of our railway has deteriorated seriously in comparison with 1913. The road bed, and especially the bridges, are in a very bad condition ; the paint having worn off, many of the bridges are weakened by rust. Good varieties of paint cannot be procured ; those which were obtainable were merely substitutes and would be useless for preventing rust.

The most striking deterioration is noticeable on the permanent way itself, for the rails, sleepers and accessories are unobtainable in Hungary as it now exists. To meet our annual requirements of 60,000 sleepers, we have only 13,000 sleepers available. We have only been able to provide even this quantity by restricting the renewals of sleepers during the last three years.

But these unsatisfactory conditions cannot be continued indefinitely, because the number of defective sleepers is increasing and makes the working of the line dangerous. We are also unable to obtain switches and crossings.

The buildings are also, to a great extent, in a deplorable condition. It has been impossible to undertake serious repairs in view of the extraordinary rise in wages and especially owing to the lack of building materials for construction.

Some of these materials, such as iron girders, building timber, plates, etc., are either unobtainable or can only be procured with great difficulty. The buildings are therefore becoming more and more delapidated owing to this lack of materials.

Rolling Stock.

Locomotives.—Since 1913 there has been no change in the number of locomotives (28). As a result of excessive use the number of serviceable engines has decreased by 30 per cent.

Carriages.—In 1913 there were 73 passenger coaches, 23 vans and mail vans, 635 goods trucks; total 731 carriages. To-day the number of vans and passenger coaches remains the same ; on the other hand that of the goods trucks has fallen to 287. There is, therefore, a decrease of 348 goods trucks, which have been appropriated by the neighbouring States in the districts occupied by them.

Rolling-stock under Repair.

Locomotives.—In 1913, 18 per cent of the locomotives were under repair ; this proportion has since increased to 30 % as a result of the lack of materials and the use of lignite, and it still continues to increase.

Carriages.—In 1913, the proportion under repair was 6 % to 7 % ; at present owing, to the reduced number of carriages, this percentage is 10 per cent.

Locomotives Required.—The present number should be increased by 30 %.

As regards wagons, the 348 which were taken away should be either returned or replaced.

Traction.

The speed and loading capacity have decreased from 30 to 60 % as a result of the scarcity of rolling stock and the use of lignite—by which only 2,500 calories can be produced—instead of coal. Consequently, communi-

cations are frequently interrupted, traffic is limited, and goods become congested owing to the impossibility of transporting them.

In the present circumstances the restoration of pre-war time-tables is out of the question.

Traffic.

In 1913, the daily traffic was as follows: the number of slow trains in each direction, between Sopron and Gyor, was 4; between Sopron and Eberfurst, 4; between Celldömölk and Eszterhàza, 2; between Eszterhàza and Pandorfalu, 3; as a result of the lack of coal, only a reduced number of slow trains are now running, and the position is as follows:

The number of slow trains in each direction daily, between Sopron and Gyor, is 2; between Sopron and Ebenfurt, 1; between Celldömölk and Eszterhàza, 1 train three times a week; between Eszterhàza and Pandorfalu 1 train three times a week.

On account of the reduced traffic we are compelled to use longer trains. For this reason, and on account of the bad quality of coal at our disposal, the speed has been decreased and the time taken in travelling increased to a very considerable extent. Delays are frequent and it is impossible to draw up a time-table adequate for our legitimate needs.

The goods trains service can only be carried out with great delays. From time to time the service has to be limited to the transport of food and fuel.

Traffic Returns.

The number of passengers conveyed between Gyor and Ebenfurt was:—

In 1913	1,005,575
In 1920	1,348,512

Between Celldömölk and Pandorfalu:

In 1913	273,038
In 1920	196,687

Between Gyor and Eberfurt: the amount of goods was:

In 1913	981,845 tons
In 1920	376,261 tons

Between Pandorfalu:

In 1913	274,965 tons
In 1920	74,815 tons.

Rates.

During and since the war we have been compelled on several occasions to raise our railway rates on account of the continual increase of the working expenses.

(a) Passenger Rates.—From July 1st, 1916, the State Railways increased their charges by 20 %. We adopted these increased State Railway rates on November 15th, 1917 ; on September 1st, 1918, we raised our rates as follows : from 1 to 20 km. 50 % increase, from 21 to 40 km. 40 % increase, from 40 to 100 km. 25 % increase, from 101 to 130 km. 20 % increase. On June 15th, 1919, our passenger, luggage and express goods rates were increased by 200 %, and on July 1st, 1920, we again increased our passenger and luggage rates by 100 % ; on August 11th, 1920 the express goods rates were increased by 400 % ; finally, on August 25th, 1920, we adopted without modification the passenger and luggage rates of the State Railways, increased by 300 %.

(b) Goods Rates.—In consequence of the imposition of the war tax on railways, we increased our rates on February 1st, 1917, by 30 % ; on January 1st, 1918, we increased fast, slow and wholesale goods rates by 50 %. Moreover we have imposed supplementary rates for working expenses amounting successively to 50, 30, and 16 hellers for each increase of 100 kg. In addition railway rates in respect of classification of goods were progressively increased ; on September 1st, 1918, all rates were raised by 70 %, except those for the transport of coal, which were only raised by 40 %. Supplementary rates for working expenses were abolished, but all rates were successively increased by permanent additional increases of 25, 15, and 8 hellers for each increase of 100 kg ; on June 16th, 1919, all rates were increased by 200 %, and on July 1st, 1920, they were further increased by 100 %. Finally on August 25th, 1920, we adopted, without modification, the State Railway rates, increased by 200 %.

The following table shows a comparison of rates in 1919 and in 1920 :

	Price of tickets		
	I cl.	II cl.	III cl.
	crowns.		
For 1913 per 100 km.	5.50	3.60	3.40
» 1920 » 100 »	162.—	93.—	54.—

	Charges for carriage of goods : Price per 100 kg. in hellers :				
	Fast Traffic	Cl. I	Cl. A	Cl. III	Special for coal
For 1913 per 100 km.	326	181	99	39	39
» 1920 » 100 »	13.284	7.404	2.548	1.056	1.092

Financial Position.

Although receipts have increased by reason of the repeated rise in rates, and also owing to the considerable increase in traffic, it has not been possible to profit by this advantageous situation, in view of the insufficient rolling stock at our disposal and above all on account of the scarcity of fuel.

Moreover, the necessary expenditure on staff and plant increases daily in proportion to the increase of receipts. The efficiency and the minimum standard of living of the staff cannot be maintained, even partially, except, by means of continual increases in salary, in view of the fact that the conditions of life are becoming more and more difficult, chiefly on account of the increased price of articles of prime necessity (food and clothes).

As regards equipment, expenses caused by the continually increasing prices of all materials, and chiefly coal, are becoming a burden which we are less and less able to bear.

At present, the situation is such that, in spite of the increase in receipts, our business can only just cover expenses, and then only provided that only the most urgent repairs are carried out either to buildings or to rolling stock.

For the years 1919 and 1920 it has not been possible, for want of the necessary security, to meet the payment of the interest-bearing coupons even of the preference shares. However, as soon as the financial situation permits, coupons which have fallen due must be paid and also such preference shares as may be drawn by lot, and this will necessarily absorb the greater part of the cash reserve of the business.

In order to meet overdue payments and also those coupons which will fall due on April 1st next, a sum of 20 million crowns would be necessary.

Moreover, our enterprise will very shortly be confronted with other obligations.

As 348 of our wagons are in occupied territory, we are compelled, in order to ensure a service of trains, to make use of foreign wagons, for the hire of which we must pay several more million crowns.

Again, considerable sums are required to repair our stock and put it into working order.

An additional burden is anticipated, arising from charges to be paid for the exemption of railway employees from active military service, and this will cost about 1½ millions. A further charge will be involved by the Government order for the increase by 15 % of the capital of limited liability companies; this will require a sum of 2½ millions.

If we compare the financial results of the balance sheets for 1913 and 1920, we note that the receipts for 1913 amounted to 4,887,075.87 crowns, whereas those for 1920 were 48,230,024.26 crowns.

The expenditure for 1913 was 2,726,250.87 crowns, while that for 1920 was barely covered by the receipts.

Consumption of Fuel.

In the year preceding the war (1913) we consumed :—

235,634 q. of coal, value 361,396 crowns ;
2,029 cub. m. of wood, value 9,526 crowns.

In 1920, on the other hand, we used :—

375,583 q. of coal, value 12,882,570 crowns,
1,698 cub. m. of wood, value 201,497 crowns.

That is to say for 1920 our consumption of coal was greater by 139,449 q., equivalent to a value of 12,521,174 crowns, and although the consumption of wood was less by 331 cub. m., our expenses under this head were increased by 191,971 crowns.

The increase in the consumption of coal is not due to more extensive working, but to the following circumstance : whereas before the war we were able to obtain, at a low price, from the lost districts of Hungary or from abroad, coal possessing a power of 5,600 to 6,000 calories, in 1920 we had to be content with brown coal of poor quality and very often with lignite, obtained from what is left of the territory of Hungary and costing a very high price. With this fuel we can only attain a heat of 24,002,500 calories in the most favourable cases.

Supply of Materials.

It has been very difficult and sometimes impossible to obtain the necessary materials for the upkeep of our railway system.

Hungary to-day, deprived of her factories, forests and mines, supplies so few manufactured goods that she cannot meet her own requirements. This lack of materials, however, does not exist only in respect of manufactured products, but also of the necessary raw materials for the maintenance of the railway, since Hungary in her present mutilated state is incapable of supplying them. Consequently we are compelled to buy raw materials and manufactured products either from Austria or from more distant countries. As a result of the present rate of exchange, these purchases cause excessive expenditure to our business, and it became impossible to obtain goods or raw materials.

Hungary, in her dismembered condition, can only supply coal of small calorific value, wood fuel, and certain kinds of wood for the maintenance of the permanent way, while the better qualities of coal, iron, lead, mercury, tin, all iron objects such as rails etc., sleepers, special woods, cloth for uniforms, oils, paper, stuffing materials etc., must all be imported either from the lost Hungarian territory or from abroad.

Our reserve stocks are completely exhausted, so that we are compelled to buy materials to supply our needs from day to day. In view of the

continual increase in the prices of certain articles, these purchases have become almost impossible. In 1913, for instance, the cost of our daily consumption of coal amounted to about Kr. 990. In 1920 we had to expend Kr. 35,835, and in January 1921 as much as Kr. 61,154 per day, for coal alone. The proportion is the same in the case of other materials, and indeed sometimes it is even less advantageous.

D. Position of the Kassa-Oderberg Private Railway.

The details regarding the position of this railway are given in the table on the next page.

We would also point out that, as the Czechs occupied part of this line in November 1918 and the rest of it at the end of the same year, the general management of the railway has completely lost touch with the operating staff since that time.

Finally, from February last the management and operation of the railway passed completely into the hands of the Czecho-Slovaks, and we are therefore not in a position to supply details regarding the years following the war.

TABLE

giving details regarding the Kassa-Oderberg Private Railway.

1. *Extent of the System; Length of Lines.*

	1914-15	1915-16	1916-17	1917-18
	Kilometres			
Hungarian Lines	387,774	387,774	387,774	387,774
Austrian Line.....	64,248	64,248	64,248	64,248
Local Lines	283,912	284,069	283,428	283,428
Total...	735,934	736,111	735,450	735,450

2. *Passenger Traffic.*

	Number of civilian passengers carried.			
	2,977,811	4,003,882	7,030,788	8,384,573

3. *Financial Position.*

	Receipts in Crowns			
Hungarin Line	19,881,614	29,918,999	32,273,737	41,168,750
Austrian Line.....	11,131,778	15,744,815	21,521,757	26,017,723
Total...	31,013,392	45,663,814	52,795,496	67,186,473
	Expenditure in Crowns			
Hungaraian Line	17,778,088	22,944,207	28,195,476	39,186,433
Austrian Line.....	7,220,887	10,057,859	15,330,657	19,117,234
Total...	24,998,975	32,982,066	43,526,133	57,303,667

Note :— The service begins on July 1st of each year.

4. *Rates.*

From November 1st, 1917, passenger rates have been increased by 60 % and goods rates have been increased on an average by 30 %.

From January 1st 1918, the following have been levied :—

A surcharge of 50 heller per 100 kilos for each consignment of fast traffic goods.

A surcharge of 30 heller per 100 kilos for each consignment of slow traffic goods below 5,000 kilos.

A surcharge of 16 heller per 100 kilos for quantities above 5,000 kilos.

5. *Condition of Rolling-stock on June 30th,* 1917.

Locomotives :—	
Express Locomotives	33
Slow Locomotives	8
Fast Goods Locomotives	59
Slow Goods Locomotives	86
Locomotives for local lines	15
Total	201
Tenders	186
Coaches :—	
Saloon Cars	6
Restaurant Cars	2
Passenger Coaches	253
Total	261
Vans	145
Post Office Vans	22
Breakdown Wagons	5
Travelling Cranes	2
Covered Goods Wagons	931
Goods Trucks	5,741
Total	6,846
Snow-Ploughs	6
Rolling-stock of the Cserbato Rack Railway :—	
Rack Locomotives	2
Passenger Coaches	4
Open Goods Trucks	2

Rolling stock of the Gzacza-Zwarden Line :—

Goods Locomotives	4
Tenders	4
Passenger Coaches	6
Vans	2
Snow-Ploughs	1

6. *Numbers of personnel in* 1917/18.

Hungarian Line	8,998	employees of all categories.
Austrian Line	3,690	employees of all categories.
Total	12,688	

II.

RIVER AND MARITIME NAVIGATION.

The length of navigable waterways in the countries of the Holy Crown of Hungary amounted before the war to 3,502 km. Of these the Danube accounted for 1,001 km., and next in order of importance came the Save, with 602 km.

The length of the Hungarian navigable waterways within the frontiers fixed by the Treaty of Peace has fallen to 1,400 km., of which 384 km. are furnished by the Danube ; of this distance 155 km. form State frontiers.

The Hungarian river craft in 1913 consisted of 164 steam-ships of 37,166 h. p., and 521 barges with a capacity of 121,171 tons. At the end of the war, on the sections of the lower Danube, a considerable number of these vessels fell into the hands of the enemy, and their future fate has not yet been decided. At present there are in the service of Hungarian concerns 88 steamers of 26,475 h. p. and 304 barges with a capacity of 121,171 tons.

In 1913, Hungarian river craft transported 2,181,013 passengers and 4,863,527 tons of goods. At the end of the war and during the subsequent revolutions waterway traffic was completely suspended for a long period. It was not until the end of the year 1919 that it began to revive slightly ; since then it has shown a certain amount of progress, but in view of its diminished tonnage and as a result of the lack of coal, it cannot rise to the former figure.

The growth of transport rates for river navigation is illustrated by the following example :— The rate for the most expensive class of goods between Budapest and Vienna was 300 deniers in 1913, 520 deniers at the close of the war, and 13,200 at the present time. The passenger fares in 1913 between Budapest and Vienna for the third class, which is the

cheapest, were 4 crowns downstream, 4.60 in 1913, 7 or 9 crowns at the end of the war, and 120 or 200 at the present time.

Hungary, before the war, was a maritime State. Its most important port, Fiume, had developed very considerably in recent years. In 1913, 13,975 vessels of 3,377,952 tons net entered the port of Fiume ; in the same year import traffic amounted to 9,236,592 q. and export traffic to 11,738,827 q. The value of the imports was 213 million crowns and that of the exports 265 million crowns.

The war arrested the development of the Hungarian merchant service. At the beginning of the war 134 steamships of 142,539 gross tonnage were registered in Hungary. At the end of the war the vessels of the merchant service fell into the hands of the enemy and were of no further use to the commerce of the Hungarian nation.

III.

AIR AND MOTOR TRANSPORT.

Hungarian Aviation up to 1914.—Civil aviation has existed in Hungary since 1909. At Rakos a few experts, professors and engineers used to engage in aviation as a sport, both with machines manufactured under their direction and also with aeroplanes of foreign make. In 1909 the Hungarian Adorjan made his first flight in a Hungarian machine. Celebrated foreign aviators have also visited us. In October 1909, Bleriot appeared at Rakos and in 1910 an international meeting was arranged there.

Hungarian aviators have made great efforts to awaken public interest by flights in the provinces, especially around Lake Balaton, the object of their flights being to reach Austria.

After the beginning of the war Hungarian civil aviation, which was only in its infancy, was absorbed by military aviation.

After 1918.—After the fall of the Communist regime and the departure of the Roumanian troops, a civil undertaking was formed at Budapest, entitled the " Société Anonyme Hongroise de la Navigation Aérienne " (Hungarian Limited Liability Company for Air Navigation), with the object of developing local air navigation and of carrying mails and passengers.

On November 7th, 1920, this company began a service from Budapest to Szombathely ; in December it began traffic with Szeged.

It possessed 20 machines.

At first this company was confronted with great difficulties arising from lack of necessary material.

The postal administration fixed the following rates for the carriage of air mails :

Letters up to 60 gr., 12 crowns. For weights in excess of 60 gr., per 20 gr., 3 crowns.

Postcards, 8 crowns.

Newspapers, 3 crowns; for more than 20 copies, 1 crown per copy.

No exact scale of charges was fixed for passenger traffic.

Number of letters carried : In November 1920 : 16,028 letters, 10,004 postcards, 38,015 newspapers. In December 1920 : 12,535 letters, 3,677 postcards, 27,256 newspapers.

Consumption of fuel per month : 2,500 litres of benzine.

Amongst foreign companies, the Franco-Roumanian Company received a concession to establish a line from Paris to Constantinople.

The Government is making efforts to establish an air post on the great international routes on the same lines as the American postal system.

Development of Motor Traffic in Hungary.

Motor traffic in Hungary had received a great impetus immediately before the war. The number of motor vehicles on the road was then about 3,000, including commercial vehicles and motor bicycles. Owing to the war and the Roumanian occupation, the number of these vehicles—particularly private cars—diminished very considerably, so that at the present moment the number of private cars, lorries and motor bicycles on the road is estimated at about 1,500 as a maximum.

Before the war the Royal Postal Service had-long distance motor postal services, which dealt with the parcels post and passenger traffic. There were 14 similar services in Hungary, amongst them 10 continuous services (4 summer services) with a total length of 805.4 km., so that the average length of one route was 57.4 km. In 1913 the traffic on these routes was served by 32 vehicles which covered 505,560 motor km., and carried 49,654 persons. Besides this traffic, various individuals established motor services principally in the neighbourhood of watering places. At present there is no such regular service, for all the postal vans have fallen into the possession of the enemy during the various occupations.

The motor vehicles at present in operation are almost all of old manufacture ; there are very few modern vehicles.

The reason for the small progress which has been made in motor transport in Hungary was that before the war the supply of horses was sufficient for the needs of the country, and horse-drawn traffic was at that time cheaper than motors, which had to be imported from abroad and required expensive fuel. At present any rapid development of motor traffic is prevented by the unfavourable economic situation and the bad condition of the roads. However, in view of the decrease in horses and the increased demands of agriculture, a rapid improvement is to be hoped for in spite of the difficulties enumerated above. The interest shown by commerce and the trouble which the Government is taking in this matter should enable us to regain the ground which has unfortunately been lost.

INDIA.

RAILWAYS.

General Results of Operation.

Appended is a statement illustrating the general result of the working of Indian railways in 1913-14, 1918-19 and 1919-20.

Material.

(a) *State of lines and equipment.* During the war it became necessary to restrict expenditure to the lowest possible limits, and great difficulty was experienced in obtaining the requisite supplies of material, with the result that the greater part of the necessary renewals and improvements on all lines had to be deferred. In addition to the normal arrears of wear and tear at the commencement of hostilities, the enormous wastage of the war years still remains to be made good. Indian railways generally are therefore, for the time being, much below the normal standard of maintenance, and it will be necessary to embark on a course of heavy expenditure before pre-war conditions can be restored.

(b) *Works to be carried out for purposes of reconstruction.*—Details are not available. The railway administrations are providing for urgent repairs and works of reconstruction on such system of priority as may be decided upon by the administrations themselves. The work of replacing some of the lines, aggregating 463 miles in length, which were dismantled during the war, has been undertaken this year.

(c) *Improvements and projects for new lines.*— A capital programme of Rs. 32,95,36,000 was sanctioned for the year 1920-21. This programme was designed to provide, so far as possible, for the improvement of traffic facilities on existing lines, urgently required to meet a rapidly expanding trade. It has only been possible, therefore, to allot a small amount for lines in progress and new construction. The actual sanctioned distribution of the programme grant is as follows :

Open line works	Rs.	11,23,73,000
Additional rolling stock	»	19,90,38,000
Lines in progress	»	86,75,000
New lines	»	94,50,000
	Rs.	32,95,36,000

The extent to which the annual expenditure on capital improvements has decreased since 1914-15 will be seen from the appended statement.

(d) *State of rolling-stock.*—During the war considerable quantities of locomotives and other rolling-stock were supplied from Indian railways to Mesopotamia and other theatres of war ; details are given in the appended statement. In addition, great difficulty was experienced in obtaining from England even the material necessary for the upkeep of essential services, and the railway workshops in India were being utilized largely for the manufacture of munitions. The result is that repairs and renewals have, to a large extent, been deferred ; and the condition of the existing stock generally is considerably below the normal standard of maintenance. The armistice did not, however, find the Indian railways unprepared, as from 1916 onwards they had been compiling in order of urgency indents of requirements from outside sources for a period of three years after the war. They were thus able to take action at once towards securing the supplies of which they stood most in need, and orders for a large number of engines, coaching stock and goods vehicles have been placed. In addition to renewals and replacements, a capital expenditure of Rs. 19,90,38,000 for the supply of additional stock was sanctioned in the programme of 1920-21.

Traffic.

Train mileage. — Numbers of passengers and tonnage of goods carried.— Statistics are contained in the appended statement.

Tariffs.

(1) *Increase of passenger fares.*— In March 1917, in order to discourage unnecessary travelling, it was decided that on all the principal broad-gauge lines the third-class fare should be advanced to the existing maximum, and on others where the ordinary fare had been only two-thirds of the maximum, that it should be advanced by 25 per cent. It was also decided has to increase the maxima of all classes to the following limits :

(a) The maxima of first and second class fares from 18 and 9 to 24 and 12 pies per passenger per mile respectively ;

(b) The maximum of the intermediate class fare from 4 ½ to 6 pies per passenger per mile for mail and fast passenger trains only ; and

(c) The maximum of the third-class fares from 3 to 4 pies per passenger per mile for mail and fast trains only.

Authority was given to railway administrations to increase fares up to these limits as circumstances rendered this necessary.

(2) *Increase in goods rates.*—The Freight (Railway and Steam Vessel) Tax Act 1917 (No. XIII of 1917), which was passed as a war measure and came into force on and from 1st April, 1917, authorized the levy of a surcharge of one pie per maund on coal, coke and firewood, and of two pies per maund on all other goods carried by orrail any inland steam vessel except in the cases noted below:

(a) All consignments of less than one maund in weight;

(b) All goods which are carried for a distance of 10 miles or less;

(c) Railway stores and coal carried for consumption on the home line; and

(d) All goods which are the property of Government at the time on despatch.

In January 1920, it was further decided to raise the rate for the carriage of public coal from the coalfields in Bengal and Bihar and Orissa by approximately 5 per cent for long distance, and up to 7½ per cent for short distance traffic.

Fuel.

(1) *Consumption and provision of each kind of fuel.*—The consumption on all the Indian railways of each kind of fuel for the years 1915-16 to 1919-20 was as follows:

	Foreign coal	Indian coal	Wood	Oil
	Tons.			
1915-16	40,959	5,143,108	112,732	2,638
1916-17	13,162	5,489,443	119,218	6,796
1917-18	3,620	5,616,725	243,450	29,800
1918-19	964	5,880,165	335,499	48,014
1919-20	360	6,055,492	322,422	53,018

The question of utilizing for railway purposes certain classes of inferior coal available in India is being considered. Experiments with pulverized coal are being carried out.

The regular use of oil-fuel for locomotives on certain Indian railways continues. At the end of the current year there were on the North-Western Railway 129 engines burning oil-fuel.

(2) *Net cost of fuel.*—This varied considerably on the different railways. Thus the average price of Indian coal on the East Indian Railway in 1919-20 was Rs. 5,15 per ton, while on the South Indian the price was Rs. 20,89 and on the Burma Railway Rs. 29,63.

The average cost of wood fuel used on the different lines (including freight to engine-sheds) varied from Rs. 16,06 per ton on the Ambaji-Taranga Light Railway to Rs. 2,70 per ton on the Assam-Bengal Railway. That of oil fuel varied from Rs. 62,82 per ton on the South Indian Railway to Rs. 27,14 per ton on the Great Indian Peninsula Railway.

Full details, as far as these are available, are given in Appendix 14 to the Administration Report on Indian Railways for 1919-20.

Statement showing the general results of working all railways in India during the pre-war and post-war years.

Particulars	Years		
	1913-14	1918-19	1919-20
1. Mileage open at close of the year	34,636	36,616	36,735
2. Total capital outlay, including ferries and suspense, on open lines (in thousands) Rs. ..	4,95,08,64	5,49,74,45	5,66,37,77
3. Gross earnings, (") Rs. ..	63,58,56	86,28,68	89,15,32
4. Working expenses (") Rs. ..	32,92,94	41,80,17	50,65,65
5. Net earnings (") Rs. ..	30,65,62	44,48,51	38,49,67
6. Percentage of working expenses to gross earnings	51,79	48,45	56,81
7. Percentage of net earnings on total capital outlay.....	6,19	8,09	6,30
8. Coaching train miles (in thousands)	55,972	44,117	52,092
9. Goods train miles (")...	57,933	74,283	70,061
10. Mixed train miles (")...	34,581	34,240	34,169
11. Total, including miscellaneous, train miles (in thousands)...	156,276	158,588	162,161
12. Unit-mileages of passengers (in thousands)	16,614,068	18,039,577	20,614,612
13. Freight ton-mileage of goods (in thousands)	15,623,235	22,140,806	20,401,656
14. Number of engines.....	8,019	8,923	8,982
15. Number of coaching stock at end of the year.....	22,381	24,684	24,704
16. Number of covered wagons ..	107,911	123,914	126,675
17. Number of open wagons	51,488	54,207	54,864
18. Number of timber trucks, including bolster trucks	3,460	3,686	3,668
19. All other classes of wagons ..	7,585	9,296	9,431
20. Total goods stock.....	170,444	191,103	194,636
21. Number of passengers carried (in thousands)	457,718	459,732	520,027
22. Tonnage of goods carried (in thousands of tons).....	82,613	91,161	87,630

The following figures will give some indication of the extent to which expenditure has been stopped and deterioration has occurred during the war.

Years	Figures in thousands of rupees.	
	Capital improvements	Rev. Renewals.
1912-13	14,84,42	2,81,47 *
1913-14	18,45,94	3,67,62
1914-15	17,14,96	3,29,97
1915-16	6,73,69	2,81,67
1916-17	2,96,80	2,20,22
1917-18	3,79,40	1,54,51
1918-19	6,23,18	1,99,86
1919-20	14,13,65	3,81,40

During the war the stock sent to war areas was :

Engines.....	223
Goods vehicles	5,093 **
Coaching vehicles.....	423 **
Brake-vans	129 **

The mileage of railways dismantled was 463.03.

* Special revenue expenditure.
** In terms of 4-wheelers.

ITALY.

I.

RAILWAYS.

The Italian Government gladly accepted the invitation of the League of Nations to contribute a statement on the vicissitudes experienced by the State Railways during the war, and to give an account of past and present efforts to repair the damage and deterioration caused by the war. The Italian Government accordingly submits to the Conference the following memorandum, which includes the information that, in its opinion, appeared most useful.

Condition of the Railway System.

Before the war the total length of standard-gauge lines which were worked by the Administration of State Railways was 13,640 km., of which 2,721 km. was double track. Although the lines were in good condition, they were only able to stand the abnormal, intense and hurried traffic involved by mobilization, by the operations of war and by demobilisation, owing to the intelligent efforts and continuous self-sacrifice of all the railway servants, who thoroughly realised to what an extent the success of their country's cause was dependent upon their efforts.

The requirements of the war, the intensity of the traffic converging upon the lines in the zone of operations, the increase in the number and length of the trains, the additional routes brought into use for the distribution of troops, material and supplies, made it necessary to undertake, both on the lines and in the stations (and solely for military reasons) numerous works and also certain new constructions which were of an extremely urgent character and at the same time of the greatest practical use.

The Montebelluna-Susegana line was laid and opened for traffic within a few months. The linking of this line with the Castelfranco-Montebelluna line was carried out in a very short space of time.

In order to increase the capacity of the various lines, the track was doubled in several sections, and connecting lines with single and double

track were constructed, having a total length of about 150 km. Several stations were enlarged, new stations were built, additional facilities were provided for loading and unloading ; the number of sidings for shunting trains and for serving the new or extended loading platforms was increased ; and additional sidings were laid for direct loading and unloading.

About 400 km. of track were fitted with the electro-mechanical block system. Central installations were provided for a total of 670 points ; signal apparatus and the safety devices necessary for new stopping places, besides signal boxes, sidings and extended crossings, were organised.

Several branch lines, with a total extent of some 20 kilometres were completed, connecting with tramways and waterways, in order to facilitate loading and unloading.

Sidings of a total length of more than 100 km. were laid for the service of large centres—such as Allied military bases and their connections with the railway—for the lines connecting with the parks, depots, aerodromes and for the military and auxiliary establishments.

Naturally, immense sums had to be devoted to all these works.

At the present moment the railway system worked by the State has a total length of 15,118 km., of which 3,412 are double track. These figures include 1,027 km. of the railways (of which 395 are double track) of the new Provinces Trentino-Julian Venetia, which were annexed to the Kingdom of Italy after the war.

Immediately after the Armistice the necessary steps were taken to carry out the work which was indispensable for re-starting traffic on the sections of railway which had been cut or damaged. In a very short time, thanks to the remarkable efforts that were made, and by means of temporary constructions, traffic was resumed throughout the system.

The next step was to begin the actual works necessary for the re-establishment of normal conditions. Many of these works have already been completed, but others which are of greater importance are still in process of execution ; it is hoped they will soon be completed.

Works and plans for the construction—directly chargeable to the State—of about 800 km. of new standard-gauge lines have also been undertaken. These works are intended to complete the railway system and to provide for the future needs of the traffic, so far as these can be foreseen. The works for the purpose of extending electric traction are deserving of special mention ; the State Railway Administration has decided to develop these works considerably and has drawn up a general programme which involves the electrification of 6,000 km. of track.

The lines which had already been electrified on June 30, 1914, had a length of 300 km. ; approximately 950 million kilometric tons were carried over these lines during the year 1913-14 ; on June 30, 1920, the total length of these lines amounted to 460 km. ; approximately 2,350 million kilometric tons had been carried over this distance during the year 1920. In addition, on June 20, 1920, the electrification of an additional 200 km. of track was being carried out.

Condition of Rolling-stock.—Before the declaration of war, *i.e.*, June 30th, 1914, the supplies of rolling-stock of the standard-gauge system were as follows:

Locomotives, steam and electric	5,305
Carriages	10,078
Luggage vans	3,641
Goods trucks	103,070

On June 30, 1920, these figures were as follows:

Locomotives, steam and electric	5,734
Carriages	10,071
Luggage vans	4,061
Goods trucks	132,518

These figures include the material of the new lines which had been added to the railway system (1,027 km.).

However, for reasons which are not far to seek, the situation as regards the working of the railway system is not very satisfactory, in spite of this apparent improvement.

The intensive employment of rolling-stock, and particularly of locomotives, during the war inevitably increased the percentage of material which became unfit for service. This has been found to be the case not only on the Italian railway system but on the railway systems of all countries which took part in the war.

The difficulty of the situation was also aggravated, after the Armistice, owing to the diminished output of labour—a circumstance which is also common to all countries.

In fact, as regards the different kinds of rolling-stock, the percentage which had become unfit for service on June 30th, 1920, as a result of damage was increased, in comparison with the figures for June 30th, 1914—taking into account the respective supplies of material—in the following proportion:

Locomotives	11.3 per cent.
Carriages	7.4 » »
Vans	2.7 » »
Goods trucks	5.6 » »

Traffic.—The following movement took place over the Italian railway system during the year which directly preceded the declaration of war:

73 million train kilometres for passenger and mixed trains.
45 million train kilometres for goods trains.

During the war, as strict economy of fuel was necessary, and as it was important to find means (locomotives and carriages) to run numerous military trains, it was necessary to make drastic reductions in the number of passenger trains. Indeed, the distance covered by these trains (with the exception of those intended for military transport) actually fell to a minimum of 24 million km. during the year 1918-19.

But once the war was over, and when the requirements of the demobilisation of the army had been provided for, it was possible for a great number of passenger trains to start running again ; this raised the distance covered during the year 1919-1920 to 43 million km.

These distances are still very much below the 73 million km. for the year which preceded the war, but the difficulties of coal supply are an obstacle to an increase in the future, without mentioning considerations of economy, to which very great weight has to be given under the present conditions of the operation of the railways.

To form an estimate of the present movement of passengers over the Government railway system, one may take as a criterion the receipts, which were 228 millions in 1913-14 and, in 1920, 625 millions (without taking into account the receipts for the railways of the Trentino and of Julian-Venetia or from the military transports).

However, in order to compare these receipts, it is necessary to deduct from the figures for 1919-20 the increases in the railway rates introduced during the last few years ; in this way we arrive at a total of 325 millions.

Strictly speaking, even these latter figures would not, when compared with the 228 millions for the year 1913-14, give an exact idea of the change which has taken place in the transport of passengers ; in 1913-14 there were, indeed, special reduced rates in force (for return tickets, season-tickets, etc.), which were abolished during the war and had not yet been introduced in 1919-20.

However, even when these factors are taken into account, it is possible to state, in a general way, that the movement of passengers over the Italian railway system recorded in 1919-20 was greater than before the war.

As this heavier traffic has, of course, been carried on by running a smaller number of trains, the result must be—and in fact it is so—that the rolling-stock has been more exhaustively employed, so that the limits which, in the long run, are admissible for the working of the lines under normal conditions are exceeded.

In contrast to what happened in connection with passenger trains, the movement of goods trains increased during the war.

The number of kilometres covered in 1913-14 was 45 millions ; this figure rose to 58 million kilometres in 1916-17, without taking the movement of military trains into account ; in the last period, that of 1919-20, a total of 47 million kilometres was reached (without including the movement of trains in Julian-Venetia and the Trentino).

This increase in the number of trains is not due to the transport of a greater quantity of goods, but to the increase of the distance over which these goods had to be carried, as a result of the far-reaching changes effected by the war in traffic routes.

In fact, the total tonnage of goods carried during the year 1913-14 reached 41.4 millions of tons, a total which was never equalled in the following years, during which it varied from 37.7 to 40.5 millions of tons.

On the other hand, the average movement of each trainload, which amounted to 178 km. in the year 1913-14, reached a maximum of 315 km.

in 1917-18, and in 1919-20, *i.e.*, when the military transport due to the war had almost entirely ceased, it still amounted to 270 km.

The kilometric tons of goods transported amounted to 7,385 millions in 1913-14 and to 10,702 in 1919-20.

As will be seen, the increase of kilometric tons is proportionately greater than that recorded in the movement of trains (47 million kilometres in 1919-20, as compared with 45 millions in 1913-14).

This result was obtained principally through the increase in the percentage of transport worked by fully loaded wagons (85 % in 1919-20 as compared with 65 % in 1913-15) and also through the decreased percentage of empty wagon traffic (18 % in 1919-20 as compared with 22 % in 1913-14).

Increased Rates.—Before the war the average kilometre rate for single and return journeys (without counting travelling at reduced rates for certain classes of persons) was 0.0636 lire.

During the war, besides the abolition of return tickets, which resulted in an increase in the average price per kilometre, rates were gradually increased, so that at the end of 1918—the time of the Armistice—the increases in rates were, as compared with pre-war figures, about 65 % for 1st and 2nd class and 45 % for 3rd.

As a whole, the average price per kilometre in 1918 was about 0.10 lire, which, compared with pre-war figures mentioned above, represents an increase of 67 %.

At the end of 1920 these increases were, as compared with pre-war figures, about 230 % for 1st class, 210 % for 2nd class and 170 % for 3rd class.

With regard to goods rates, the kilometric bases before the war kept near an average of 0.10 lire per kilometric ton for express traffic and 0.05 lire per ton-kilometre for slow traffic.

During the war these rates underwent gradual increases rising to 40 % ; after the Armistice the increases rose to 300 % for most goods, with the exception of a few common articles of general consumption and also mineral fuel, in respect of which the increase was 200 %.

Before the war the State Railway Administration employed for train-haulage purposes best quality Cardiff coal in lumps only.

During the year 1913-14, the consumption amounted to 1,600,000 tons of coal in lumps and about 600,000 tons of briquettes.

Most of the coal came from the coal-fields of Cardiff and Newport, and small quantities were beginning to be imported from America.

A small proportion of the briquettes was of foreign manufacture, but they were for the most part Italian ; they were made with fine coal from Cardiff and Newport.

In 1913-14, the average consumption of fuel on locomotives was 5.39 kg. per 100 kilometric tons carried.

But in recent times the State Railways have been obliged, owing to difficulties of supply, to accept coal of any quality — largely "through-and-through" and fine coal, which, when used in ordinary fire-grates, causes considerable waste and also contains a large proportion of ash.

This explains the largely increased unit of consumption of fuel on locomotives during the past few years ; in 1919-20 this consumption amounted to 6.36 kg. per 100 kilometric tons carried.

In 1919-20 the total consumption for train-haulage and accessory services (heating, work-shops, etc.) amounted to 3,400,000 tons, the details of which are as follows :—

Coal in lumps and fine coal	2,112,000 tons
Briquettes	1,025,000 »
Lignite	108,000 »
Wood	55,000 »
Special kinds of fuel.	80,000 »
Steamship fuel	20,000 »

Naphta is included among special fuels ; it has been used experimentally with a view to ascertaining whether it could be consumed in locomotive fire boxes in conjunction with solid fuel.

The average price of fuel consumed in 1913-14, which consisted solely of anthracite, was 36.33 lire per ton. In 1919-20 it was only the use of a large quantity of auxiliary fuel which prevented the price of fuel from exceeding 397.45 per ton ; the price of anthracite increased to a maximum of 695 lire per ton in November 1920.

Financial Position.—The excessively high price of coal constitutes one of the most serious obstacles to the resumption of normal transport conditions in Italy, and it is to be hoped that this exceptional situation will terminate as soon as possible.

Immediately before the war, in 1913-14, the ordinary receipts from the working of the railway system alone amounted to 575 millions, and the ordinary expenditure to 464 millions (including 283 millions for staff expenses).

Under the terms of the laws regulating the administration of the State Railways, this administration should, out of its own Budget, meet the expenses incurred for replacement of plant and rolling-stock, extraordinary expenses for the upkeep of the lines, payment of certain fixed capital expenditure and other so-called accessory expenses. The net difference between the receipts and expenditure indicated above, together with that arising from the working of other auxiliary services, is paid annually by the Railway Administration to the Treasury.

In 1913-14 this payment amounted to 28 millions. In 1919-20 the receipts were 1,797 millions (not counting receipts from the new provinces) and the expenditure amounted to 2,590 millions (including 1,173 for staff expenses).

Instead of making an annual payment to the Treasury, as had been the case before and even during the first years of the war, the Administration drew up its budget with a deficit of 860 millions.

The co-efficient of railway traffic had been continually decreasing until 1913-14, when it reached a figure of 76.76 % ; it then rose again

during the following years as a result of the war and its consequences; in 1919-20 it reached 133.81 %.

Finally, in the case of Italy as in that of the other countries affected by the war, like causes have produced like effects. The crisis is shown in the enormous increase in charges and the grave difficulties in operating the railways, due to wear and tear of material and plant.

However, Italy intends to face all her difficulties and is fully aware of what is needed to restore as rapidly as possible the conditions necessary for the resumption of commercial relations between peoples. She will not neglect any means to attain this end, and hopes that other countries will pursue the same object.

She desires to affirm, however, that the lack of fuel from which she is suffering will not permit her to regain a completely satisfactory position until her present heavy expenditure on coal is again reduced to tolerable dimensions.

Railway System granted to Private Enterprise.

It is well known that, as regards railways, a dual administrative system exists in Italy—on the one hand, a State system for the main lines; on the other, a local or district system granted, by concession, to private enterprise.

This system, which, about the middle of 1916, included in all 4,700 kilometres of lines already in operation and 1,050 kilometres in course of construction, has been subjected to a very serious crisis due to the war, in the first place as a result of the excessive cost of construction, which arrested the promising development of the railway system, and also gave rise to great difficulties with regard to work in course of construction; and in the second place, in respect of difficulties of operation, as a consequence of the increased wages of employees, difficulties in the supply of materials and the coal crisis. This crisis has necessitated the use, to a very considerable extent, of varieties of fuel produced at home, such as lignite, peat and wood, which in turn have caused a greater wear and tear of haulage stock (especially boilers).

At present, by means of special legislation with a view to reconciling the demands of the system conceded to private enterprise with the change in economic conditions, efforts have been made as a first step to complete the lines begun before and during the war, and then to carry out such new constructions as appear most urgent. The first results of these measures have already been realised, so that in addition to the resumption of the construction of various lines in different districts, a fresh and vigorous impulse in construction may be noted, which affects about 300 kilometres of lines belonging to the railway systems of Calabria and Lucania. The full development possible for this system amounts to about 1,200 kilometres, which, when completed, would represent a considerable increase in the figures for the above-mentioned lines conceded to private enterprise. Similar

measures have also been taken in the case of tramways outside urban areas (inter-communal tramways), the present extent of which, when the urban tramways are added to it, amounts to about 6,000 kilometres.

Legislation is also being considered with a view to the electrification of the system conceded to private industry involving a considerable economic contribution by the State and the granting of various facilities. This scheme has already made great progress.

In view of the grave crisis in which railway stock is at present involved, precise data regarding the situation of rolling-stock could only be furnished after the most careful investigation which it is impossible to carry out in a short space of time.

II.

INLAND NAVIGATION.

The development of inland navigation in Italy, particularly in the last few years, has shown more and more the necessity of restoring the existing navigable waterways and of constructing new ones, and also of making connections in order to constitute an uninterrupted system of navigable waterways covering the whole country.

In pursuance of the law of January 2nd, 1910 (No. 9—text of January 13th, 1913, No. 959, laying down new regulations for inland navigation), the Government has, since 1911, drawn up and secured approval for a list of the most important navigable waterways ; these have since been supplemented by two other lists which were approved in May 1917.

In respect of the classification made in accordance with the importance and intensity of traffic, the following waterways, which are already open for traffic or will shortly be open, require special mention :

(a) Milan—Venice ;
(b) Waterway to Lake Maggiore and Lake Como ;
(c) Turin—Savona ;
(d) The navigable system of Venetia considered as a whole ;
(e) Lake Garda—Peschiera—Mantua—Po ;
(f) Po—Bondeno—Ferrara—Primaro ;
(g) Po—Porto-Corsini ;
(h) Leghorn—Pisa—Pontedera—Florence and the Leghorn—Pontedera branch ;
(i) Terni—Orte—Rome—Tyrrhenian Sea.

These waterways, to which must be added the various secondary branches which are connected with them and all the other waterways smaller in size and importance, constitute the general system of inland

navigation in Italy. For some years past the Government has given the matter more and more attention. It is, in fact, aware of the inestimable advantages from the point of view of economy and transport which the nation will derive from this system if worked to its fullest capacity.

In accordance with the programme of the various works to be undertaken, which enumerated them in order of importance, and provided that they should be executed with the least possible delay, considerable credits were granted—particularly during the war and the period which followed it —for the construction of the Milan—Po Canal (entrusted to the administration of the Port of Milan), for putting into working order the intermediate section of the Po between this canal and the sea, for the acquisition of powerful dredgers to be used on the river, and for putting into working order the principal canals of the navigable system of Venetia.

The longest and most important inland navigable waterway is that which, passing *via* the Brondolo—Po Canal from Venice, connects the Venetian Lagoon with the Po. This was constructed during the war with the co-operation of the army services, and is now almost finished. It will utilise the course of the River Po, from the junction of the Po and the Adda, by means of an artificial channel about to be constructed, and will finally be continued to Milan.

The total length of the Po—Brondolo waterway is 20 kilometres.

It can thus be said that the Po is already connected with the commercial port of Venice, the industrial port in construction at Bottenigo and the ports of Malamocco, Palestrina and Chioggia, by a navigable waterway available for vessels of about 1,000 tons,

From Venice this line will link up the Venetian system as far as Sdobba, Trevisa and Padua. This system was improved during the war and the work of improvement is still being continued.

The navigable system formed by the rivers and canals of the Venetian region has a length of 1,400 kilometres, of which two-fifths consist of sections of river or sea, and three-fifths of canals in the lagoon and of canals in the interior. The connections provided are as direct and complete as could be desired; the outlet of the whole is in the lagoon-part of Venice.

(1) The Venetian Coast route, from Venice to Grado, crosses the following navigable rivers near their mouths; the Sile, the Piave, the Livenza, the Lemene, the Tagliamento, the Stella, and the Corno.

(2) Similarly, the route which follows the coast and connects Padua and Venice with the Po crosses near their mouths the Brenta, the Bacchiglione, the Gorzone, the Adige, the eastern and main branches of the Po.

(3) The route Venice—Padua—Vicenza crosses the navigable canals of Mirano, Novissimo, Battagle, and Brentella.

The Po, which is naturally available for vessels of large tonnage (600 tons), will serve as a link between Cavanello, at the mouth of the Mincio, and the Volano Canal; this will make it possible to reach the Comacchio Lagoon *via* the Ponte lagoscuro-Ferrara—Volano Canal (which is now under construction) and also to reach Mantua by the Mincio, through the Governolo dock, which is under construction. This dock, which is designed

for vessels of 1,000 tons, will make the Mincio accessible to large vessels. Thus barges of considerable tonnage will soon be able to reach the port of Mantua, which is already the centre of a considerable quantity of water-borne trade and which will witness a still greater increase of this trade when the new dock enables goods to be transported between Venice and Mantua by vessels of large tonnage.

Owing to permanent works, already begun, for regularising the river-bed, and also to the sustained activity of a fleet of dredgers, seven in number, the Po, from the point where it is joined by its junction with the Adda, will have a permanent depth of 2.50 metres of water, which will thus permit the passage of vessels of large tonnage. Three more dredgers are under construction in Holland, and others will shortly be ordered.

A canal, which will terminate at Rogeredo, is being commenced between the mouth of the Adda and Milan, the cost being estimated at from 225 to 250 million lire. On this elaborate system, stations have already been opened at Ponte lagoscuro, Ponte Catena (Mantua), Boretto, Casal Maggiore and Cremona. On the other hand, work has already been commenced on the ports of Milan, Pavia and Cremona, and plans have been drawn up for the stations of Ferrara, Piacenza and Migliaretto (Mantua) and also for the improvement of the ports of Boretto and Casal Maggiore.

Important works are in hand for the improvement of the Tiber, including the construction of a port at Ostia, a navigable channel connecting the capital with the sea, and also the renovation of the Navicelli Canal connecting Pisa and Leghorn.

A vast scheme is under consideration and will shortly be put into execution for canalising the Mincio, for utilising the waters of Lake Garda and for establishing an important line of inland navigation from the Trentino to the Adriatic, and for constructing the inland waterway Modena—Bondeno—Po, and Po—Porto Corsini.

Schemes for establishing communications by water between the port of Milan and Lakes Maggiore and Como are also in preparation. The political and economic importance of this plan is obvious, since many national and international problems are bound up with it.

The foregoing facts show the progress that Italy has already made, and also what she hopes to achieve in order to solve in the best possible way the complex problem of inland navigation.

This fact has become even more evident in view of the increase of trade in the principal centres of Italy during these last years, since the obvious advantages to be derived from the development of navigation have been experienced there for some time.

According to the information contained in the summary of the report, by the President of the Technical Executive Committee on Inland Navigation published in 1908, the length of the Italian waterways amounts to 4,847 km., 3,036 of which are already navigable. The remaining 1,811 km. have still to be rendered navigable.

Of these 4,847 km., 1,372 are navigable for vessels of 600 tons, 1,948 for vessels of 250 tons, and 1,527 for vessels of less than 250 tons.

Recent information is not available regarding transport traffic on the Italian waterways. The figures given below refer to the pre-war period, particularly to the year 1913:

Lakes	939,150	tons,	12 %
Valley of Padua	5,645,553	»	60 %
Valley of the Brenta	560,410	»	7 %
Valley of the Piave and the Livenza	1,166,340	»	15 %
Arno	304,670	»	4 %
Tiber	90,447	»	2 %
Total:	8,706,570	tons	

During the war, traffic on the waterways certainly diminished to a very great extent; however, at the present time it is not only tending to regain its previous importance, but is also responding to the vigorous impulse caused by the improvement in the conditions of navigation, due to the work which has recently been carried out and also to more perfect departmental organisation.

III.

MERCANTILE MARINE.

Pre-war Tonnage.—At the beginning of the war, on December 31st 1914, Italy had 644 Italian vessels of a total gross tonnage of 1,958,838 tons, and, in addition, 69 vessels which had belonged to the Austrian State or Merchant Service and had been sequestrated since the war, with a total gross tonnage of 370,236 tons, making in all 713 vessels, and 2,329,074 tons [1].

Employment of the Fleet.—Of all the national services, the Italian Merchant Service was the one which, during the war, was subjected to the heaviest strain in keeping up the supply of indispensable products and war material. Italy's small tonnage was gradually drafted into State service, beginning with large steamships, and going on to smaller steamers and finally to sailing vessels.

[1] Among the measures adopted by the Government with respect to navigation and ocean transport, the first and most important was the creation in February, 1916, of the Central Commission for Sea-borne Traffic, which was responsible for:

(a) providing for the transport by sea of material belonging to the State and shipped in foreign ports;

(b) exercising the necessary supervision to ensure that non-requisitioned vessels should be employed exclusively in the national interest;

(c) checking the requirements of the chief industries in order to use Italian tonnage in proportion to these requirements.

First of all merchant vessels were employed, and subsequently passenger steamers and transatlantic liners.

Requisitioning.—As long as possible it was the duty of the State to limit requisitioning, which became more and more necessary as the result of the ever-increasing shortage in the world's supply of shipping. There were two main systems of requisitioning: requisitioning by time, and requisitioning by ton-mile.

Rates of Compensation for Requisition.—The rate of compensation per ton-mile was settled so as to correspond with that of requisitioning by time, in accordance with a sliding scale, which took into account the origin of the cargo—there were three zones (England, North America and South America)—the place of destination, and the tonnage of the vessel. A distinction was drawn between cargoes of corn and cargoes of coal.

In the case of steam tugs, compensation was determined according to horse-power. As regards sailing vessels, motor boats, and lighters of all kinds, direct agreements were entered into between the local authority and the owner.

Advantages of the two Systems.—The advantages of these two systems from the ship-owners' point of view are obvious.

Requisitioning by time guaranteed the ship-owner a fixed monthly compensation but left him no control over the vessel, which was under the management of the State.

Requisitioning by ton-mile, on the other hand, encouraged the ship-owner to make a better use of available tonnage; it was to his advantage to secure a cargo for the return voyage, and to expedite loading and unloading and so reduce the time taken on voyages. So long as working conditions remained normal, or nearly so, requisitioning by ton-mile was applied on a large scale, especially for long voyages, but the rise in working expenses, together with the increasing difficulties of navigation, and the obligation to follow definite routes for reasons of safety, made it impossible to secure the fullest use of the vessel under the ton-mile system. This system was then applied in fewer cases, and finally abandoned. All vessels were subjected to the system of requisitioning by time.

Increase in Rates of compensation for vessels requisitioned by time.—Owing to the increase in expenses, it was necessary to raise the rates of compensation. The first increase was fixed by a decree of the King's Lieutenant, dated May 17th, 1917 (No. 845), followed by the decree of August 18th, 1918 (No. 1149), which made a distinction between voyages beyond Gibraltar or Perim and those in the Mediterranean and Black Sea. This decree also laid down the rates per gross ton per month, regard being had to the above distinction. The decree of the King's Lieutenant dated August 18th, 1918 (No. 1149), fixed the monthly compensation, while retaining the distinction between voyages in the Mediterranean and Red Sea and voyages beyond Gibraltar and Perim. It used as a basis a formula

which took into account the gross tonnage of the vessel, its dead-weight, its age and, indirectly, its value.

Finally, by a decree of the King's Lieutenant dated March 30th, 1919 (No. 502), a fixed monthly compensation per gross ton was adopted.

For other types of vessels, the previous figures, subject to a few modifications, were taken as a basis.

Other Methods of chartering Vessels.—The system of requisitioning by time, which was applied on a large scale, gave good results. It was supplemented, however, by further measures taken as and when they became necessary.

Compulsory Voyages.—By a decree of May 31st, 1916 (No. 646), it was enacted that, in order meet the urgent needs of public administrations other than those of the State, and the requirements of services or businesses carrying on work in the public interest, the compulsory carriage of coal, benzine, grain, sugar, phosphates and other raw material could be ordered.

The Government made wide use of this power, and extended the rule as to compulsory voyages to all types of vessels. As a result of this auxiliary system, it was possible to meet urgent requirements which could not have been provided for by requisitioning alone. In this way also, associations of traders, organisations and other auxiliary establishments were able to secure material with which the State could not have supplied them.

Requisitioning of the Holds of Vessels.—The same decree empowered the Government to requisition the holds of Atlantic liners, which were thus used as cargo boats.

Mixed Cargoes. — A special system of mixed cargoes of metals and cotton was also adopted in June 1916.

A few experiments were made with mixed cargoes of metals and cereals, but they were not followed up.

Mixed cargoes were abandoned at the end of 1916 owing to the more urgent need for products other than cotton, and because of the excessive length of the voyages which the vessels had to make in order to load at different ports.

Shipping subject to special obligations.—A few companies which were under contract to supply the State with certain war stores, the raw material for which had to be imported from abroad, fitted out ships on their own account, or retained the use of the tonnage which they already owned.

In accordance with the same principle, which had given rise to compulsory transport for auxiliary establishments, it was decided to leave in the hands of these commercial bodies the vessels which they required to maintain their supplies, on the express condition, however, that this

tonnage should be employed exclusively for the transport of raw materials (coal, metals, oils, minerals, etc.). This measure was applied especially to ships of the Ansaldo and Ilva Company, and later to the following companies :— *Societa Nazionale di Navigazione, Lloyd Mediterraneo, Societa Italo-Americana per il petrolio.*

Liberation of Small Vessels.— At the end of the war, the whole sailing fleet was freed from requisitioning, together with ships of less than 300 tons burden. Those under 500 tons were liberated next, and finally, ships of less than 2,000 gross tons. Only a few of the last class remained under requisition for military service on the coasts, or for trade with Lybia, the Adriatic, Albania, Rhodes, and the Black Sea, and also for the shipment of special commodities such as cements, pozzalana, stores, etc.

Fixed Freights.—This measure was adopted with a view to the resumption of normal maritime traffic, and for the same reason a new type of contract, called the "Fixed Freight Contract", was adopted in October 1919.

The main feature of the contract is the carriage of goods for a sum which is fixed in advance and varies according to the place from which the cargo comes and its destination. It leaves the management of the vessel in the hands of the owner, and gives him the right to take cargoes on the return voyage, but in this case the State formerly reduced its freight-payment by 10 per cent. as a set-off against the return freight received by the ship-owner. Subsequently the total amount of the compensation was left to the ship-owner without any percentage being deducted by the State. At the outset, the system of fixed freights (applied at the request of the individual ship-owner), payment being made not according to the tonnage of the vessel, but according to the amount of the cargo and the nature of the merchandise carried, was favourably received. But this feeling only lasted as long as the freight rates established under this system remained proportionately higher than the compensation for requisition.

When these freights, which were fixed for a specified period, fell below the compensation for requisition, while the shipowner remained responsible for managing the vessel and for all the expenses connected therewith (including, except for certain privileges on the first voyage, the cost of coal), most shipowners, who had asked for the fixed freight system, requested to be put back under requisition by time.

Two year Charters.—By a decree of the King's Lieutenant dated August 18th, 1918, No. 1149, the State chartered for two years ships of the national mercantile marine which had been recently acquired or built.

This represented a fairly large and valuable accession of strength, for 18 vessels of a total gross tonnage of 64,930 tons were chartered.

Available Shipping.—At the end of 1919 the position of the national fleet under State control was as follows :

		Gross tonnage
Number of vessels requisitioned	103	331,363
» » » under the fixed freight system	27	150,343
» » » under time charter	18	64,000
» » » employed by regular lines	10	63,460
» » » employed by subsidised lines	65	168,502
» » » passenger vessels (Atlantic liners)	19	93,415
Number of non-requisitioned vessels.		
(1) subject to no restrictions	50	328,225
(2) reserved for special services and transport	40	179,546
(3) freed from requisition as being under 2,000 tons gross	99	53,349
Totals:	431	1,434,403

Monthly Averages of Imports.—The monthly average of the total imports carried in Italian merchant vessels chartered from 1915 to 1919 was as follows:

1st	half year	1915	monthly	average	import.	Tonnage	1,365,968
2nd	» »	1915	»	»	»	»	1,345,483
1st	» »	1916	»	»	»	»	1,349,900
2nd	» »	1916	»	»	»	»	1,212,023
1st	» »	1917	»	»	»	»	893,069
2nd	» »	1917	»	»	»	»	893,449
1st	» »	1918	»	»	»	»	789,406
2nd	» »	1918	»	»	»	»	978,988
1st	» »	1919	»	»	»	»	1,067,378
2nd	» »	1919	»	»	»	»	1,201,320

Chief Cargoes.—The chief cargoes carried by sea during the years 1917, 1918 and 1919 were the following:

	1917. T.	1918. T.	1919. T.
Coal	4,991,328	3,590,789	6,851,456
Grain	2,563,855	3,734,916	3,716,089
Frozen meat	95,825	166,228	88,661
Metals	1,220,368	915,567	551,326
Cotton	152,962	118,397	160,489
Mineral oils	459,433	713,287	489,862
Goods of various kinds	1,435,345	1,371,191	1,754,307

Management of Vessels in special cases and co-partnership Voyages.—By a Decree of August 10th, 1918 (No. 1149), the State was authorised to entrust shipowners with the management of vessels which it had bought; a preference was given to shipowners who had lost their vessels as a result of the war. The State was not the owner of the vessels which had been

purchased but merely of those built under the law of April 5th, 1908 (No. 111), for the lines controlled by the State, and of vessels sequestrated and captured from the enemy during the war. For this reason it granted the right of management and joint operation of certain of the latter vessels to private concerns.

These vessels are :

Alberto Cavalletto
Brescia
Catania
San Giusto
Ferdinando Palasciano
Angelo Brunetti
Carlo Pisacane
Fratelli Bandiera
Tortona
Pesaro

which are managed on behalf of the State by concessionary companies in return for a guarantee and the repayment of expenses according to the class of vessel and the importance of the service which it performs.

Regular Lines.—These concessions were specially granted to companies which had proposed to found regular lines and had not sufficient tonnage at their disposal. The State was thus able, after the war, to establish the following regular shipping lines :

Northern Europe—Italy—Levant : Societa italiana di Servizi marittimi ;
America—Italy—Smyrna : Societa di Navigazione generale italiana ;
Northern Europe—Italy—Far East : Navigazione italiana ;
Northern Europe—Italy : Australia Lloyd Sabaudo.

The lines restored or established by employing privately owned vessels were :

New Lines :

1. Italy—Northern Europe—Australia (of high dead-weight tonnage, for mixed traffic) ;
2. Italy—Central America—Chile (commercial) ;
3. Italy (Trieste) New-York (commercial) ;
4. Trieste—South America (commercial) ;
5. Genoa—Havana—New Orleans—Mexico (commercial).

Lines which have resumed their sailings :

Genoa—New York (passengers, freight, mails) ;
Genoa—Philadelphia (passengers, freight, mails) ;
Genoa—Montreal (passengers, freight, mails) ;
Genoa—Brazil—La Plata (passengers, freight, mails) ;
Genoa—Panama—Valparaiso (passengers, freight, mails) ;
Genoa—Panama—Valparaiso (freight) ;

Genoa—Antilles—Mexico (freight);
Genoa—Antwerp—Australia (mixed traffic and mails);
New York—Italy—Levant—Black Sea (passengers, freight, mails);
Trieste—New York (passengers, freight, mails);
Trieste—Gulf of Mexico (freight);
Trieste—Brazil—La Plata (passengers, freight, mails);
Trieste—Brazil—La Plata (general merchandise and goods in cold storage);
Genoa—Philadelphia;
Genoa—Canada (passengers and freight) proposed;
Circular Genoa—New York *via* Naples—Smyrna—Constantinople—Constanza—Naples—New York, of great political and commercial importance.

Thanks to calls at ports in Patras, Algiers and Spain, these markets will be linked up with the Italian and American markets by direct and important lines.

Abolition of Requisitioning.—By a decree of the King's Lieutenant dated July 29th, 1920 (No 1135, Annex 1), the Italian Government stopped the requisitioning of vessels in order to promote overseas trade directly interesting the country and in order that shipowners might once more take their part in the national economic development. The freedom given to shipowners and to shipping is still conditional on the needs of the State and the fulfilment of contracts to supply the country with the necessities of life and other goods essential for the industrial development of Italy.

The military and political character of certain services renders it necessary to maintain complete control over the fleet, and the State continues to requisition a few vessels of small tonnage for use in the Mediterranean. The Government, however, intends to remove all restrictions from the Italian mercantile marine as soon as possible. With this end in view the State has handed over certain vessels to private persons or to private co-operative societies.

Shipping Losses during the War.—During the war Italy lost 267 vessels of a gross tonnage of 781,387 and 1,046,386 tons, classified as follows:

	Number.	Displacement	d. w.
Cargo vessels	191	538,345	817,127
Mixed traffic vessels	51	122,815	139,696
Passenger vessels	20	113,401	79,588
Vessels of special type	5	6,624	9,975
Total:	267	781,385	1,046,382

The losses also included 376 sailing vessels of a displacement of 99,852 tons and a gross tonnage of 150,000.

The Existing Fleet.—On January 1st, 1920, including newly built ships and recent purchases, there remained:

451 national steamships, gross tonnage 1,503,144
44 sequestrated steamships, gross tonnage 227,139

The difference as compared with the figures for 1914 is shown in the following table:

	No. of Ships	National d. w.	No. of Ships	Sequestrated d. w.	Totals No.	...
Tonnage existing on 31st Dec. 1914 ..	644	1,958,838	69	370,236	713	...
Tonnage existing on 1st Jan. 1920 ...	451	1,503,144	44	227,139	495	...
Decrease	193	455,694	25	143,097	218	...

		Totals d. w.
January 1st, 1920	Total tonnage	2,329,074
December 31st, 1914	Total tonnage	1,730,283
	Decrease	598,791

Number of sailing vessels on 31st December, 1919: 4,490. Exact tonnage 267,565.

JAPAN.

It is evident that a full treatment of such a complicated and comprehensive subject as we are now going to deal with would require a number of voluminous works. For the present purpose, however, a brief outline of it will suffice.

To grasp the general situation of transportation in Japan before and after the war, it is highly important to consider first of all the role that Japan has played in the Great War and its economic influence on the progress of transportation. When the war broke out in Europe in 1914, Japan immediately followed her Allies in declaring war against Germany. She sent her troops to Tsingtao to co-operate with Great Britain and she despatched her fleets to the South Seas and even to the Mediterranean ; she used her utmost endeavour to maintain peace in the Orient, thus enabling her allies to concentrate their forces in Europe. In addition she supplied money and munitions to certain of the Allies.

The commercial depression which had been felt in Japan for some time before the war was aggravated by the outbreak of the war, and there was consequently a considerable falling off in traffic both by land and sea. The subsequent development of the war, however, brought large orders for munitions from Russia ; the consequent expansion of our foreign trade (exports in 1917 amounted to 1,600 million yen, and in 1915, 700 million yen), together with the resulting increase of activity in our own factories, made overwhelming demands, far in excess of the average, on our land and sea transport companies. And at the same time, the scarcity of bottoms in Europe gave ample scope for the employment of Japanese shipping, even in European waters. The consequent rise in freights and the lack of coasting vessels resulted in diverting traffic from the sea-route to the rail, thus causing serious congestion in the railway traffic. These circumstances made it necessary to effect immediate improvements in the management of the transport services ; the construction of new railways was commenced, and, numerous ship-building yards were started to supply the pressing need of vessels.

Since 1920, when there was a great depression in commerce, Japan also could not escape from similar effects, and her inactivities in shipping enterprises have been amply illustrated in the closure of many new ship-building yards one after the other.

Such were the main causes and effects underlying the general conditions of traffic on land and sea in Japan, and in the following summary the respective conditions of railways, vessels, and so on will be seen.

I.

RAILWAYS.

A. Condition of Tracks.

The standard gauge of the Japanese railways is 5 feet 6 inches. For the purposes of local traffic there are some lines of 4 feet 8 inches gauge, operated by electric traction, and of 3 feet or 2 feet 6 inches, operated by steam. The usual motive power is steam, and the electrification of railways is, up to the present, chiefly confined to city and suburban traffic.

Since 1906, when the Railway Nationalisation Law came into effect, all the principal railways have come under Government management, but the construction and management of local railways has been left to private enterprise by the concession of charters. In March 1914, immediately before the outbreak of war, the total mileage of State railways was 5,472 (721 miles of which was double track) and of private railways 1,096 ; the total mileage thus amounted to 6,568 miles. At the beginning of the war, State railways were being constructed at an average rate of about 213 miles a year in the execution of a definite programme. During the war (1915-1918), however, the rate of construction was reduced to almost half the pre-war rate owing to the fact that efforts were directed rather to improvement than to construction and, further, to the scarcity of materials and labour as a result of the war. At the end of March, 1919, the year immediately after the Armistice, the entire mileage of the State railways stood at 6,208 (832 miles of which were double track) and of private railways 2,005, thus showing an increase of 13 % in Government-owned railways, while that of private railways was almost double as compared with before the war. This is mainly due to the rapid progress attained in commerce and industry as well as in agriculture and forestry in the provincial districts.

B. Rolling-stock.

(1) *Locomotives.*—In March 1914, the number of locomotives was 2,500 (tank engines 1,248 ; tender engines 1,240 ; electric locomotives 12) with an aggregate weight of 137,465 tons, the average weight per engine being 55 tons. In March 1919, the number of tank engines decreased to 1,181, while the tender engines amounted to 1,920 (showing an increase of over 50 %), and electric locomotives 7, thus showing a total of 3,120 with an aggregate weight of 194,655 tons (average weight per engine 62.4 tons).

This is due to the fact that, in order to increase the speed and tractive power of engines, the number of tank engines was reduced and the tender engines and larger type locomotives were increased.

(2) *Passenger-stock.*—In March 1913, there were 4,200 small-type carriages (4 wheel) and 2,240 bogie coaches, the total 6,440, with seating capacity for 269,851 passengers. In March 1919, the number of 4-wheel small-type carriages was reduced to 3,937, and the bogie carriages were increased to 3,583 (an increase of about 60 %), the total being 7,520 with seating capacity for 334,765 passengers. As these figures show, the adjustment resulted in an increase of bogie stock over smallt-ype carriages with a view to increasing the average carrying capacity per vehicle and improving facilities.

(3) *Goods wagons.*—In March 1914, the number of covered wagons was 19,678, and open trucks 22,936, the total being 42,614 with a freight capacity of 365,156 tons (average capacity per vehicle 8.6 tons). In March, 1919, the total was 51,065 with freight capacity of 570,192 tons (average capacity 11.1 tons) showing an increase in number of 20 % and in capacity of 60 %, mainly due to the increase of the larger type wagons over the small-type trucks.

C. Traffic.

As previously stated, a financial depression was prevalent in Japan at the beginning of the war, and this is further shown in the figures given below as to the condition of traffic.

	Passenger miles (Passengers)	Ton miles (Goods)
1913	3,690,000	3,050,000
1914	3,620,000	2,980,000

Towards the autumn of 1915, conditions of trade and industry in Japan showed an unprecedented increase, which, keeping pace with the progress of the great war, reached its climax at the armistice, when the traffic reached 7,940 million passenger miles and the entire volume of goods carried was 6,290 million ton-miles, thus showing an increase of 119 % in the number of passengers and of 111 % in the volume of goods as compared with those at the beginning of the war.

It will readily be seen, therefore, that such an enormous increase of passengers and goods inevitably caused a heavy congestion of traffic in spite of the strenuous efforts made to improve operation and to increase not only the number of cars but also the speed and frequency of trains.

D. Tariffs.

(1) *Passenger Fares.*—The revised tariff instituted on November 1st, 1907, was in force at the early period of the war. This tariff was laid down on a sliding-scale system, divided into five zones as below :

Class	Distance	Rate per mile
	miles	sen
	1— 50	1.65
	50.1—100	1.30
3rd class	100.1—200	1.00
	200.1—300	80
	over 300	70
2nd class		150 % of 3rd class
1st class		250 % of 3rd class

(With extra charges for express trains.)

Since July 1918, however, owing to the hardships felt as a result of a systematic scheme on account of the various handicaps produced by the war, the tariff was revised as follows :—

3rd class	increased		25 %
2nd »	»		75 % of 3rd class
1st »	»		177 % of 3rd —
Express charges	»	about	50 %

This increase is moderate as compared with the high cost of living in Japan, and the advance in prices and wages has compelled a further revision of the tariff, as follows :—

3rd class	average	increase	20 %
2nd »	»	»	30-40 %
1st »	»	»	30-40 %

The following is the revised tariff which was put into force in February, 1920, and which is still in force.

Class	Distance	Rate per mile
	miles	sen
	1— 50	2.50
	50.0—100	2.10
	100.1—200	1.70
3rd class	200.1—300	1.40
	300.1—400	1.20
	400.1—500	1.10
	500.1	1
2nd class		200 % of 3rd class
1st class		300 % of 3rd class

(Extra charges for express trains)

The various private railways have their own tariffs, which are considerably higher than those of the State railways. This is due chiefly to the short length of their lines, the mileage of which ranges from 120 miles to only a few miles, the average being only 20 miles.

(2) *Freight Rates.*—The revised tariff of 1912 was in force at the beginning of the war. The main features of that tariff were as follows: (1) The adoption of the principle of the sliding scale on the basis of a small zone system; (2) regulation of rates according to the classification of goods divided into five groups in view of their quality, form, weight, value and use, etc.; (3) classification of wagon-load consignments into three classes, under which the rates varied accordingly, etc.

At the end of March 1914, the average distance traversed was 84 miles per ton, the average rate of one ton per mile being 1 sen 731. The advance in prices and wages caused by the trade expansion and industrial activities in the course of the war increased the running expenses of the railways to such an extent as to make it difficult to balance revenue and expenditure. In the circumstances the tariff was revised in September 1918, rates were increased, on the average, 20 %, and certain adjustments and modifications were likewise made in the rates.

The object of these revisions and adjustments was to meet the financial needs of the railways, but also the ideal of social policy was also kept in view; for example, a reduction of rates on the necessaries of life was made, in order to neutralize the soaring tendency of prices. The year ending March 31, 1919, witnessed a remarkable increase of the average goods traffic per ton of 105 miles, the average rate of one ton per mile being 2.8sen.

The universal distress which prevailed in the business world especially after the spring of 1920, when Japan was overshadowed by threatened panic, affected railway traffic to such an extent as to necessitate a further revision of tariffs to meet emergencies and to obtain a fund for the construction and improvement of such lines as were urgently necessary. Quite recently new tariffs have been prepared, to come into force in February

1921, involving an average increase of 28 % in rates. The chief features of the new tariff are the improvements in the classification of goods; these classes have been increased from 350 to 1,200, and have been arranged more in consonance with their qualities and uses, and also in the change in the number of groups from five to six ; furthermore, certain adjustments were made with a view to carrying out certain social and industrial policies.

E. International Traffic.

Situated as she is in the Far East, and surrounded by the sea, the international traffic of Japan was formerly conducted only through sea-routes. Since the Korean and Manchurian railways came under Japanese control, however, international through traffic has been inaugurated through the medium of the two railways establishing the overseas connection between the Japanese, Chinese and Chinese Eastern Railways. Furthermore, in 1912, when Japan was admitted at the Berne Conference into the Trans-Siberian Through Passenger Traffic Union, she was brought into direct railway communication with Europe ; a new epoch was thus reached in overland communications between Europe and the Far East. To give further details :—

(1) Arrangements were made in 1911 to open through passenger traffic between the Japanese railways and Petrograd, Moscow, Odessa and Irkutsk, the service comprising the three routes *via* Vladivostock, *via* Dairen, and *via* Chosen.

(2) A service was established in 1912 between the Chinese Eastern Railway, the Ussuri Railway (Siberia) and the Russian fleet, on the Russian side, and the Japanese Railways, the South Manchuria Railway and the Osaka Chosen Kaisha S. S. Co. on the Japanese side ; this service was joined by the Chosen Railways two years later.

(3) In 1913, through passenger and goods traffic was opened between the Japanese and Chinese railways as a result of several traffic conferences held by both authorities.

(4) In 1913 again, as stated above, Japanese participation in the Berne Convention brought the Trans-Siberian international through traffic into effect and marked an epoch in overland communications between Europe and the Far East.

(5) The establishment of through traffic with Europe gave facilities for the institutiton of the two circular tour services known as the " Circular Tour *via* Siberia and Suez " and the " Around-the-World Tour *via* Siberia and Canada. "

For various reasons of a complex character the through goods traffic between Japan and Russia was not established until January 1914—four years later than the inauguration of through passenger traffic in general. Further, the service which then existed was limited in scope, and covered no more than North Manchuria and the Maritime Province on the Russian side. The extension of this service into European Russia *via* Siberia was

contemplated, but with the outbreak of the war the matter was thrust into the background.

Such was the situation before the war, and even at the beginning of the war international traffic conditions were not greatly affected. But the Russian revolution put the Siberian railways out of use for that purpose, at least, and overland communication between Europe and the Far East has thus unfortunately been brought to a standstill.

Meanwhile through traffic between the Japanese and Chinese railways has made further progress ; in 1915 various arrangements were made in connection with the Chinese-Japanese circular-route tickets, Chino-Japanese through tickets for excursion parties, and so on. Furthermore, in 1917, a through service for general luggage, except for certain special articles, was established between Tokyo and certain other stations in Japan on the one side and Peking and Tientsin stations and the Peking-Mukden railways in China on the other, as a further step towards the realisation of Chino-Japanese through goods traffic.

F. Fuel.

The fuel used on the Japanese railways is, as a rule, coal, the motive power of the railways being principally steam. Crude petroleum, however, is sometimes used for town railways and also for mountains where tunnels are frequent.

In 1914 the consumption of coal amounted to 178 million tons, and crude petroleum to 2,933 kilolitres, the average price of coal being 5.17 yen per ton and of crude petroleum, 1.40 yen per kilolitre.

In the year ending March 1919, the consumption of coal amounted to 307 million tons — an increase of 72.6 % over that at the beginning of the war. The average price was 19 yen per ton, showing an increase of about 40 %, and of crude petroleum, 3.472 kilolitres, the average price being 3.61 yen per kilolitre — an increase of 250 %. On the other hand, the consumption of coal by private railways amounted to 170,000-180,000 tons in the same period.

G. Economic Condition of the Railways.

The financial results of the working of the railways under Government management has proved to be very favourable ; even in the period from April 1914 to March 1915, when the working of railways was most affected by the outbreak of the war, the ratio of earnings to expenses was 54.1 %, and the net profit amounted to 51,500,000 yen, the percentage of profit on invested capital (1,007 million yen) being 5.1 %. Despite the fact that expenses amounted to 156 million yen, due to the abnormal advance in the cost of materials and wages, the earnings in the year which included the armistice (April 1918 to March 1919) were 243 million yen (incontrast to 112 million in 1914), yielding a profit of 7 % on the capital of 1,270 million yen. The period April 1919 to March 1920 was a prosperous year

in the business world, and the net profit of the railways amounted to 100 million yen, due chiefly to the increase in passenger rates. About April 1920, a general depression was felt in all directions and naturally caused a gradual decline in passenger as well as goods traffic.

However, under the financial system of the Japanese Government, by which profits acconing from the railways may be used for the improvement and construction of railways, the present programme will bring in annual earnings of about 100 million yen ; further construction and improvements are to be made, involving capital of about 200 million yen. About 100 millions of this will be raised by a loan.

II.

SHIPPING.

A. Condition of Vessels and Ship-building.

The total number of Japanese vessels in 1919 was 17,576, representing a gross tonnage of 3,315,270. At the end of 1920 the total of Japanese ships was estimated to exceed 4 million tons gross, though an accurate figure is not available from available statistics. In May 1920, the number of vessels of over 1,000 tons was estimated at 779, representing a gross tonnage of 2,603,031. A comparison of the total tonnage in 1920 with that of 1919 shows an increase of 7 to 8 %, and this rate of increase is not far from the average rate of the last ten years—7.65 % ; as compared, however, with the record rate of 1917 — 22.9 % — it showed a notable decrease.

Wooden vessels.—Before the war there were no wooden vessels with a tonnage of more than 1,000. In 1918, however, there were 11 wooden vessels of that capacity, representing over 10,000 tons gross, together with 137 vessels of 500-1,000 tons, representing over 100,000 tons gross ; vessels with a tonnage of under 500 tons increased after the war by 40,000 tons gross. The total increase in the number of wooden vessels amounted a 149 %.

Steel vessels.—The increase in the number of vessels after the war was as follows :—

Vessels with a tonnage of 3,000-10,000	290,000 tons
» » » » 1,000-3,000	170,000 tons
» » » » 500-1,000	60,000 tons

But those with a tonnage of over 10,000 decreased by 20,000, tons and those of under 500 tons also decreased by 20,000. Thus, the total increase in steel ships amounted to 27 %.

Age of vessels.—Vessels of 5 years old or more in 1918 (after the war) exceeded those in 1913 (before the war) by about 700,000 tons. The increase after the war of the vessels of the same age was about 42 % ; before the war it was about 17 %.

Quality of ships.—Newly-built Japanese steam-ships of large type rendered excellent service during the war, and were considered very good as cargo-boats both as regards type and speed, but small steamers of 1,000 tons or thereabout are much inferior in quality as well as in speed ; the lack of adequate engine-rooms, due to unsatisfactory facilities and hasty construction at the shipbuilding yards, must be ascribed to wartime conditions.

Trawlers.—86 trawlers, with a tonnage of 17,464, were sold to foreign, countries during the war, and the majority of those remaining were transformed into cargo boats, thus showing the decrease of trawlers. At the end of 1918 there remained only 10 boats representing 2,156 tons.

Shipbuilding capacity.—Vessels under construction at the end of 1920 numbered about 60, with an aggregate tonnage of 25,000 tons gross. This represented about 60 % of the shipbuilding capacity of Japan.

Before the war the shipbuilding capacity of Japan was only 17 ships of a tonnage of 1,000 ; in 1917 it rose to 157 ships of about 5,000 tons.

The general depression caused by the conclusion of the armistice dealt so hard a blow to the shipbuilding industry that during 1919-20 the numerous small dockyards deficient in capital were closed down. Recently even larger yards have found it necessary to discharge about one-fourth of their workers.

A striking feature of the changes which have taken place in Japanese shipping during the intervening period of the war is the remarkable increase of ocean-going ships ; at the end of 1920 there was an increase of about 800,000 tons in cargo vessels of that category. The progress made by Japanese shipping is clearly illustrated by the fact that although before the war there existed few large type cargo-boats, except those used in the great subsidized lines, during the war 100 ships representing 700,000 gross tons were produced to be chartered by private shipowners.

The following table shows the number and tonnage of the Japanese shipsre gistered in the period 1913-1919 :—

STEAMSHIPS			SAILING VESSELS		TOTAL		Increase over preceding year.
Year	Number	Gross tons	Number	Gross tons	Number	Gross tons	
1913	2,243	1,722,970	9,151	545,617	11,394	2,268,587	0
1914	2,331	1,853,425	9,611	536,503	11,942	2,419,928	6.7
1915	2,325	1,872,859	10,299	595,521	12,624	2,467,344	2.0
1916	2,345	1,939,979	10,860	634,340	13,205	2,574,319	4.3
1917	2,353	2,021,036	11,862	734,052	14,215	2,755,088	7.0
1918	2,805	2,482,325	13,871	905,760	16,675	3,388,085	22.9
1919	2,870	2,840,650	13,781	13,781	945,033	3,785,683	11.7

B. Navigation Service.

I.—*Regular Steamship Services.*

At the end of 1913 (immediately before the war) the following were the regular services run by Japanese vessels between Japan and foreign ports, no regular service being available on Japanese vessels so far as navigation between foreign ports themselves was concerned.

(1) European service: Yokohama-Antwerp line (passengers and goods), *via* Indian Ocean-Suez Canal, fortnightly sailings. Vessels employed, 11 (15,000-6,000 tons).

(2) North American service: *(a)* Hongkong-San-Francisco line (passengers and goods), *via* Japan-Honolulu, monthly sailings. Vessels employed, 3 (13,000 tons).

(b) Hongkong-Seattle line (passengers and goods), *via* Japan, monthly. Vessels, 4 (6,000 tons).

(c) Hongkong-Tacoma line (goods and passengers), *via* Japan, fortnightly. Vessels, 6 (6,000 tons).

(3) South American service: Hongkong-Valparaiso line (passengers and goods), *via* Japan, North America (southern coast), Mexico, Panama, Peru, every 2 months. Vessels, 3 (9,500-6,700 tons).

(4) Australian service: Yokohama-Melbourne line (passengers and goods), *via* Hongkong-Manilla, monthly. Vessels, 3 (7,400-5,000 tons).

(5) Java service: Kobe-Java line (principally goods), *via* Hongkong-Borneo-Serebes, monthly. Vessels, 3 (4,000 tons).

(6) Indian service: *(a)* Kobe-Calcutta line (goods). Twice monthly. Vessels, 6 (7,000-4,000 tons).

(*b*) Kobe-Bombay line (goods) fortnightly. Vessels, 7 (5,000-3,000 tons).

(7) China Service: (*a*) Yokohama-Shanghaï line (passengers and goods), *via* Japanese ports, fortnightly. Vessels, 5 (3,000-2,000 tons).

(*b*) Kobe-Shanghaï line (goods) 16 times per year. Vessels, 1 (2,000 tons).

(*c*) Yangtse-Kiang coasting service: 1. Shanghaï-Hankow line (passengers and goods) 3 or 4 times per week, vessels, 3 (3,000-2,000 tons); 2. Hankow-Newchang line (passengers and goods) 6 times monthly, vessels, 2 (1,000 tons); 3. Hankow-Shangtang line (passengers and goods) 8 times per month, vessels, 2 (1,000-900 tons); 4. Hankow-Changtu line (passengers and goods) twice monthly. Vessels, 1 (500 tons).

(*d*) Kobe-Newchang line (passengers and goods) weekly. Vessels, 4 (2,000-1,000 tons).

(*e*) Yokohama-Newchang line (passengers and goods), fortnightly. Vessels, 3 (2,000-1,000 tons).

(*f*) Kobe-Dairen line (passengers and goods), twice weekly. Vessels, 4 (3,000-2,000 tons).

(*g*) Tsuruga-Vladivostock line (passengers and goods), weekly. Vessels, 1 (2,000 tons).

(*h*) Kobe-Vladivostock line (passengers and goods), *via* Korea, monthly. Vessels, 1 (2,000 tons).

As a result of the outbreak of war, the number of foreign liners which had plied regularly or irregularly between Japan and various ports of the world was gradually reduced ; these services were almost abandoned as the war continued and Japanese foreign trade was seriously affected. The Japanese authorities and business men realised the urgent need for cargo space of their own, in order to maintain and develop Japanese trade as well as for the reasons of national security ; they therefore made united efforts to increase Japanese vessels and establish new steamship lines. As a result of these efforts, Japanese shipping made striking progress, and in June 1920, not long after the close of the war, several new Japanese regular lines were added to those already in service before the war.

The following are the regular lines added during the war to the above-mentioned list :—

(1) European services :— (*a*) Yokohama-Liverpool line (passengers and goods), *via* the Indian Ocean, Suez Canal, monthly sailing. Vessels, employed, 7 (6,000-5,000 tons) ; (*b*) Yokohama-Hamburg line (passengers and goods), 3 lines *via* the Indian Ocean and Suez Canal, monthly. Vessels, 4 (6,000-3,000 tons) and 7 (7,000-5,000 tons) ; (*c*) North America and European service (goods), *via* New York, English and French ports, every 2 months. Vessels, no fixed number ; (*d*) South America and European service (goods). Between River Plate and England, every 2 months. Vessels, no fixed number.

(2) American service :— (*a*) Yokohama-New York line, *via* Panama, once every month. Vessels, 6 (7,000-5,000 tons) ; (*b*) Yokohama-New York line (goods), *via* Suez Canal, once every month. Vessels, 2 (7,000 tons) ; (*c*) Singapore-New York line (goods), *via* Manilla, Panama, monthly. Vessels, 6 (7,000-5,000 tons) ; (*d*) Calcutta-New-York line (goods), *via* Suez Canal, monthly. Vessels, 7 (7,000-3,000 tons) ; (*e*) Calcutta-New Orleans line (goods), *via* Hong-Kong, Japan, Panama, 7 sailings per year. Vessels, 3 (5,000-4,000 tons) ; (*f*) Hong-Kong-Puget Sound line (goods), *via* Japan, fortnightly. Vessels, 6 (9,000 tons) ; (*g*) Hongkong-San Francisco line, *via* Japan, monthly. Vessels, 3 (1,500-4,000 tons) ; (*h*) Kobe-Portland line (2 lines), monthly each line. Vessels, 2 each (4,000-3,000 tons).

(3) South American service :— (*a*) Yokohama-Buenos Aires line (goods), 2 lines, *via* South Africa, Brazil, (1) every 2 months. Vessels, 3 (5,000 tons) ; (2) 10 times per year. Vessels, 6 (5,000 tons) ; (*b*) Calcutta-South American, West Coast line (goods), every 2 months. Vessels, 3 (5,000 tons).

(4) Australian service :— (*a*) Yokohama-Melbourne line (goods), *via* Manilla, monthly. Vessels, 4 (3,000 tons) ; (*b*) Australia-South Sea

line (goods), *via* Sydney, Java, fortnightly. Vessels, no fixed number; (*c*) Australia-India service (goods), every 2 months. Vessels, no fixed number.

(5) Indian service :— (*a*) Yokohama-Bombay line (goods), monthly. Vessels, 8 (6,000-3,000 tons); (*b*) Calcutta-Singapore line (goods), monthly. Vessels, no fixed number.

(6) South Sea service :— (*a*) Japan-Java-Calcutta line, monthly. Vessels (ex-German) 3 (3,000 tons); (*b*) Yokohama-Ex-German South Sea Island line (passengers and goods) 2 lines, every 2 months. Vessel, 1 (2,000 tons); (*c*) Bangkok-Java line (goods), 20 times per year. Vessel, 1 (1,000 tons); (*d*) Moji-Java line (goods), 2 lines, *via* Manilla, twice monthly. Vessels, no fixed number.

(7) Oriental service :— (*a*) Yokohama-Shanghaï line, monthly. Vessels, 1 (2,000 tons); (*b*) Osaka-Tsingtao line (passengers and goods) 3 lines, twice per month each. Vessels, 1 each line (2,000 tons); (*d*) Yokohama-Tientsin line (passengers and goods), every 25 days. Vessel, 1 (1,000 tons); (*d*) Osaka-Tientsin line (passengers and goods), 2 lines; (*e*) Osaka-Hangkow line, 2 lines.

Some of the above-mentioned lines may at present be changed or omitted, as a result of the general depression in Japanese shipping at the close of the war and also of the resumption by foreign shipping of abandoned services.

II. — *Irregular Service.*

Before the war the irregular services of Japanese shipping were devoted chiefly to neighbouring waters, such as the Japanese and Chinese coasts and the South Seas, and those engaged in ocean service were comparatively few. But this was no longer the case when the war gave rise to a world-wide demand on shipping, particularly in European waters and the Atlantic, and Japanese shipping found a chance to share in these activities. Even after the war it has continued its services in this direction.

The following are the figures for Japanese irregular services in 1914 and 1917:

Service	June 1914		June 1917	
	Number of ships	Gross tons	Number of ships	Gross tons
Europe	1	4,536	16	55,424
North America	4	15,717	32	136,625
Australia	5	27,339	5	14,703
India	4	15,798	24	77,789
Others	20	77,978	13	44,409
Total	34	141,368	90	328,950

Of late years the activities of the Japanese irregular services in this direction have naturally increased, owing to the remarkable increase in the number of Japanese ships.

On the following page is a complete list of figures illustrating the activities of Japanese shipping, including both regular and irregular service of vessels over 1,000 tons, for the years 1918, 1919 and 1920, ending in May.

Service.	1918 (end of May)		1919 (end of May)		1920 (end of May)	
	Vessels.	Tons.	Vessels.	Tons.	Vessels.	Tons.
I. *Home Waters:*	239	499,379	401	805,770	415	876,752
(a) Japanese coasts	126	253,732	178	328,910	173	340,601
(b) Near seas of Japan	88	186,566	210	444,897	229	503,455
(c) Near foreign ports	13	28,736	1	1,618	1	2,351
(d) Yangtse River	12	30,345	12	30,345	12	30,345
II. *Ocean Service:*	273	271,412	281	1,315,840	325	1,626,474
(a) Japan-America	32	147,182	28	123,487	36	203,983
(b) Japan-New-York	7	47,586	15	94,512	22	138,218
(c) Hongkong-Japan-America	48	284,050	17	149,226	17	148,560
(d) Japan-Australia	14	58,140	22	83,948	33	136,108
(e) South-America (east coasts)	6	36,016	13	80,644	12	66,470
(f) South Seas	19	38,927	64	195,956	30	99,391
(g) Europe	17	111,626	40	233,387	92	502,974
(h) Japan-Straits Settlement-South Seas	50	125,635	6	18,205	10	28,287

(i) Japan-India	25	86,759	30	122,749	37	149,200
(j) India-Mediterranean	5	19,811	3	8,983	3	6,826
(k) Mediteranean	13	45,731	4	15,729	4	15,485
(l) South America (west coasts)	3	24,232	4	30,783	5	35,104
(m) Japan-South Sea-India	—	—	2	6,037	6	16,223
(n) Japan-Calcutta-New-York	—	—	5	20,060	7	33,426
(o) Japan-Mediterranean	6	27,055	27	105,382	11	46,219
(p) Bombay-Suez	3	10,600	—	—	—	—
(q) South-Africa	1	3,113	—	—	—	—
(r) Atlantic-Mediterranean	24	104,949	5	24,737	—	—
III. *Under repairs*	11	19,864	21	52,392	37	96,526
IV. *Unknown*	40	74,394	—	—	—	—
V. *Stranded*	2	3,468	—	—	—	—
TOTAL	565	1,768,517	703	2,173,986	779	2,603,031

C. Condition of Passenger and Goods Traffic.

Though it is difficult to give here an accurate description of the conditions of the passenger and goods traffic on the lines, extensive and numerous as they are, it is safe to assume that the volume of goods and passengers carried by Japanese vessels increased enormously during the war as a result of the abnormal expansion of trade previously referred to. The congestion of traffic particularly experienced in Oriental ports, due to the withdrawal, as a result of the war, of foreign shipping from the service in this direction, called for increased activities on the part of Japanese shipping on one hand, and on the other, a large demand for goods in Europe drew enormous exports from the Orient towards Europe ; the greater part of such traffic was naturally carried by Japanese vessels. The activities of Japanese shipping in the matter of freight transport may be amply illustrated in the Japanese trade returns of corresponding years, the details of which, however, would not be mentioned here.

Extreme congestion of traffic was also experienced by Japanese passenger vessels, due to the collapse of the Siberian railways, as well as to the withdrawal of European vessels from Oriental fields. The main lines to Europe, America and Australia were thus left to the Japanese shipping, and it is not surprising that passenger traffic by Japanese vessels in this respect was so congested that since 1916 passengers on the Japanese liners have had to wait their turn to obtain accommodation months safter having applied for a passage.

D. Freight Rates.

During the war, the freight ratesof Japanese ships, as of all others, advanced by leaps and bounds, owing to the general shortage of bottoms, and this soaring tendency of freight rates continued until October 1918, when the War-time Shipping, Regulations came into force.

The world-wide depression in shipping business after the war caused a sudden fall in the extent of Japanese shipping, and freight rates have tended to return to pre-war conditions.

The passenger rates of regular Japanese liners were not so radically affected by the war ; most of them were fixed at relatively low rates for the public benefit, as they were subsidised by the Government. The percentage of increase in their rates was estimated roughly at about 50 %.

The following table shows freight rates in 1912 and 1917, with the categories of goods carried by subsidized and non-subsidized vessels:—

Freight Rates.

(Comparing 1912 with 1917.)

(1) European Service.

(*a*) From Japan to Europe.

	1912	1917
General Cargo.		
Subsidized vessels	50 shillings	90 shillings
Non-subsidized vessels	50 »	132 »
Lumber.	36.9 »	110 »
	36.9 »	132 »
Bean Oil.		
Subsidized vessels	30 »	100 »
Non-subsidized vessels	30 »	120 »
Beans.		
Subsidized vessels	42 »	135 »
Non-subsidized vessels	42 »	162 »

(*b*) From Europe to Japan.

Machinery.		
Subsidized vessels	42 shillings	67 shillings
Non-subsidized vessels	42 »	Not reported
Iron and steel materials.		
Subsidized vessels	25 »	45 shillings
Non-subsidized vessels	25 »	Not reported

(2) North American Service.

(*a*) From Japan to North America.

	$	$
General cargo.		
Subsidized vessels	6.50	8.50
Non-subsidized vessels	6.50	23.25
Foodstuff.		
Subsidized vessels	5.50	8.—
Non-subsidized vessels	5.50	25.—

	1912	1917
Rice.	$	$
Subsidized vessels	4	4.50
Non-subsidized vessels	4	28

(b) From North America to Japan.

Cotton.	$	$
Subsidized vessels	0.40	1.50
Non-subsidized vessels	0.40	1.50
Iron & steel.		
Subsidized vessels	0.30	0.40
Non-subsidized vessels	0.30	0.80
Iron ingots.		
Subsidized vessels	0.20	0.30
Non-subsidized vessels	0.30	0.80

(3) South America to Japan.

(a) From Japan to South America.

General cargo.	$	$
Subsidized vessels	10.00	13.00
Non-subsidized vessels	10.00	13.00
Chinaware.		
Subsidized vessels	10.00	13.00
Rice.	7.50	9.75

(b) From South America to Japan.

Nitre.		
Over 100 tons	24 shillings	60 shillings
Below 100 tons	30 »	64 »
»		

(4) Australia Service.

(a) From Japan to Australia.

General cargo.		
Subsidized vessels	25 shillings	50 shillings
Non-subsidized vessels	25 »	58 »

	1912	1917
Sulphur.		
Subsidized vessels	20 shillings	35 shillings
Non-subsidized vessels	20 »	35 »
Cotton.		
Subsidized vessels	25 »	50 »
Non-subsidized vessels	—	58 »

(b) From Australia to Japan.

General cargo.		
Subsidized vessels	33 shillings	55 shillings
Non-subsidised vessels	—	60 »
Lead.		
Subsidized vessels	20 »	30 »
Non-subsidized vessels	— »	30 »

(5) Bombay Service.

(*a*) From Japan to Bombay.

General cargo.		
Non-subsidized vessels	11.00 yen	41.00 yen
Glass and Chinaware.		
Non-subsidized vessels	8.00 »	39.00 »
Matches.	6.75 »	39.00 »

(*b*) From Bombay to Japan.

Cotton	9.25 rs.	25.00 rs.

(6) Calcutta Service.

(*a*) From Japan to Calcutta.

General cargo	2.00 yen	39.00 yen
Glass and chinaware	2.00 »	37.00 »
Matches	5.25 »	36.00 »

(*b*) From Calcutta to Japan.

Pig Iron	16 shillings	30 shillings
Cotton	7.50 rs.	25.000 rs.
Gunnybag	7.00 rs.	60.000 rs.

Time Charterages.

	Large type (over 6,000 tons)	Medium type (about 3,000 tons)	Small type (below 1,000 tons)
	yen	yen	yen
1914, May	—	1.55	—
October	—	2.00	—
1915, May	3.50	3.20	2.60
October	6.00	5.50	4.40
1916, May	18.00	16.00	11.00
October	14.00	13.00	8 00
1917, May	21.00	18.00	16.00
October.....	40.00	36.00	34.00
1918, May	45.00	38.00	28.00
October	41.00	34.00	28.00
1919, May	28.00	2200	20.00
October	20.00	15.00	13.00
1920, May	12.00	10.00	8.00
October	8.00	6.50	5.00

E. Fuel.

Coal is the fuel chiefly used on Japanese vessels. Although there are certain vessels built since 1911 which use both coal and crude petroleum, the use of the latter is very limited, owing to its high price as well as to the lack of reservoirs for it. The consumption of coal as fuel for vessels in Japan was reported in 1917 as 1,126,000 tons for Japanese vessels, and 122,000 tons for foreign vessels. The large demand for coal during the war caused the price to rise to a height of 23-24 yen per ton in 1917, as compared with 5-6 yen in 1913.

F. General Financial Situation of Shipping.

The cost of vessels—a dominant factor of shipping business—was in 1913 as follows :—

New vessels :—

Large	types,	about	100	yen	per	ton.
Medium	»	»	125	»	»	»
Small	»	»	135	»	»	»

The unprecedented demand for vessels and the shortage of shipbuilding materials, as well as the advance of wages during the war, caused a rise in the cost of vessels, which, at the end of 1917, was as follows :—

Large types	750	yen.
Medium types	700	»
Small types	550	»

and in 1918 it reached a climax :—

Large types	900–1,000	yen.
Medium types	800–850	»
Small types	700	» approximately.

It will be seen from the foregoing that a peculiar tendency was shown in the price of vessels due to the abnormal demand on the larger ships during the war, which in normal days used to be higher for small-type vessels than for larger types.

In 1920, the cost of vessels, though it did not return to the normal conditions, tended to decrease to the actual cost of construction, exclusive of speculative factors ; it amounted to 200-225 yen per ton for large vessels.

The cost of running Japanese vessels increased after the outbreak of war almost 3-4 times as compared with pre-war figures, and the wages of crews likewise advanced about threefold. These circumstances, together with the general depression of trade, form a great handicap to Japanese shipping ; its rivals will be very hard to beat, as the average charterage of world shipping is only about 2 yen (end of February last).

LATVIA.

I.

RAILWAYS.

1. *The Latvian Railway System.*—The Latvian railways comprise a total of 1,875.8 km. of broad-gauge track, of which 740 km. are of the normal European gauge, and 1,135.8 km. of the Russian gauge. In addition there are 972.9 km. of narrow-gauge railways, 48.1 km. being of 1 metre gauge, 267.7 km. of 75 cm. gauge, and 657.1 km. of 60 cm. gauge. The curves and gradients on the broad-gauge lines are not severe. The gradients are particularly easy on the main line from Russia, and also the Riga line, which follows the River Dwina (Duna); the fall here is only 0.0055 (5.5 %) over the whole distance. On the remaining lines the steepest gradient is 0.0085 (8,5 %). Various types of rails are in use throughout the system, the most general being of the type IV with a weight 29.5 kilog. per foot; 1,500 sleepers are used for 1 km. of track.

2. *Nature of the Country served by these Railways.*—As the gradients of the broad-gauge lines show, the undulating surface of Latvia offers no insuperable difficulties to the construction of railways.

The sleepers are deeply embedded and covered with a thick layer of soil or sand. The depth of the valleys rarely exceeds 300 metres.

Difficulties are sometimes caused by peat bogs or moraines. The North Latvian Railway terminates at Riga. From Riga it runs N.E. to the railway junction of Walk, passing first through the bare and sandy plain of Riga, which it crosses in about two hours, and then entering the undulating country of southern Latvia; rich pasture-land and woodland forests testify to the fertility of the soil. The Latvian portion of the river forms a deep valley, containing moraines, and crevasses 80 m. deep. Sigulda, Eriki and Zesis (Sigulda-Segevold, Eriki-Ramotzky, Zesis-Venden) are the principal tourist-centres for this part of Latvia, which is commonly referred to as Latvian Switzerland, and contains many objects of geographical and historical interest. In Eastern Latvia a narrow-gauge railway runs

from Walk to Aluksne (Marienburg) which is situated in the highest part of the country, near Mount Munamegio (324 m. high). Most of the tributaries on the right bank of the Aa River rise here and flow into Lake Peipus, as does also the River Ewst, the principal affluent on the right bank of the Dwina (Duna). The latter flows in a south-westerly direction passing through Lake Luban. The railway runs in the same direction, following the foot of the hills. In South Latvia, up to the point where it joins the main line Riga — Daugavpils at Plavinas (Steckmanshof) it follows the right bank of the Daugava, only leaving it for a short distance. The line runs through similar country to that of the Riga-Walk line — a sandy plain watered by the Dwina (Duna), which is deep enough to be used as a navigable waterway in conjunction with the railway. On leaving Ikschkile (Ixhyll) the railway enters the southern part of the South Latvian hills, the other sections of which have already been described. The first hills rise near Ogre ; they are very precipitous, and of great geological interest. The River Ogre here runs into the Dwina. This river, with its stony bed, is swift and deep in the spring when the snows melt, and frequently carries away its wooden bridges, but has no great depth in summer. A little further on, the railway affords the sole means of communication, as the Dwina forms rapids which do not allow of navigation. It is, however, possible to make use of the central channel as far as Riga for timber floating. Continuing to Plawinas, the line passes through a picturesque hilly country, in which the tributaries of the Dwina form rapids and waterfalls.

Beyond the confluence of the Dwina and Aivuxfta rivers, the country falls gradually to a level of 60 metres above sea level and becomes flat and swampy.

The Dwina again becomes navigable for small steamers as far as Daugavpils (Dunaburg) and Kraslovka. The railway here follows the right bank. 20 kilometres beyond Plawinas (Steckmanshof) it crosses the Ventspils-Moscow line and continues eastwards to Rezekna (Rositten). The country rises considerably towards the east, resembling the southern hill district. From Rezekna the line continues eastwards into Russia and is crossed by the line Daugavpils-Pleskava (Dvinsk-Plescau) running north, east.

The line then follows the left bank of the Dwina from Krustpils (Kreizburg) to the west of Ielgava (Mitau). Here it crosses the hill district of Upper Courland, the source of numerous small tributaries of the Courland section of the River Aa. It then crosses the plain of Ielgava (Mitau) which is watered by these rivers and by others rising in Lithuanian Courland to the south of this plain. The tributaries of the Aa which rise in these hills irrigate the plain to the south of the railway. The character of the ground changes to the north of the railway ; marsh and prairier land succeed each other on both sides of the line between Jelgava (Mitau) and Riga. From Ielgava two lines run to the Baltic, the northern to Ventspils and the southern to Leepaja (Libau). The northern crosses the hilly country of Central Courland and the River Abava (Abau), the right bank tributary of the Venta. This hilly country resembles Latvia, though it does not

attain such high altitudes as the latter. Descending to the lowest part of Northern Courland, the line passes close to Lake Usma (Usmaiten), the largest lake in the country, bounded on the east by virgin forests. From Tukkum a branch line runs to Riga, calling at several coastal watering-places. The country is composed of a succession of swamps and sandy plains. The line Ielgava-Leepaja (Libau) runs through the centre of Courland, crosses the river Venta and the hills on its left bank, and terminates at the coast. The mildness of the climate here is in marked contrast to that of Northern Latvia, owing to the more southerly situation and the vicinity of the sea. The harbour of Leepaja is never ice-bound. This coast, with its dunes and lagoons, resembles that of East Russia.

3. *Traffic on the Latvian Broad-gauge System and Possibilities of Future Development.*—Traffic on the broad-gauge railway system may be classed under three heads : firstly, transit from Russia and other foreign countries which once formed part of Russia — the lines Riga-Daugavpils (Duneburg), Rosenova (Silupe) Krustpils-Ventspils (or Riga), Vainode-Leepaja (Libau) and Walk-Riga ; secondly, services between the principal centres, the lines Riga-Ielgava-Leepaja-Riga-Sloka-Tukkum, Vocgulbeno-Eriki, Vecgulbene (Altschvanenburg)-Plavinas ; and lastly, the communications in the neighbourhood of Riga — Riga-Kemorsi, Riga-Ogre, Riga-Sigulda.

The amount of transit traffic on the section Riga-Ventspils and Leepaja is shown in the following table of exports from and imports to the ports of the Baltic Sea which belonged to the former Russian Empire. The amount of traffic at each port is expressed as a percentage of the total exports from and imports to all these ports :—

Port	Export		Import	
	1905-10	1912	1905-10	1912
Petrograd	25.1 %	19.8 %	37.0 %	35.1 %
Reval	5.1 %	3.7 %	18.1 %	19.1 %
Parnu	1.7 %	1.2 %	0.4 %	0.4 %
Riga	45.3 %	43.1 %	33.6 %	32.2 %
Ventspils	11.7 %	18.2 %	4.2 %	6.1 %
Leepaja (Libau)	11.1 %	13.9 %	6.7 %	7.1 %
	100 %	100 %	100 %	100 %

In 1913 exports from Riga amounted to 226 ¼ million roubles, that it to say, 18.4 % of the whole of the export trade of the former Russian Empire ; in the same year the imports into Riga amounted to 178 million roubles, that is to say, 15.6 % of the whole of the Russian imports. In 1908 the number of railway wagons arriving daily in Riga was 800, and in

1913 this number reached 1,300. In the same year the quantity of imports arriving at Riga was 168 million poods, and the exports 96 million poods. The goods exported consisted chiefly of corn, wood, flax, hemp, linseed, linseed cakes and leather, and the chief exports were : coal, coke, dyers' wood, machines and implements, cork, wood, compost, phosphate, tea, lead, indiarubber, sulphur, etc. At the beginning of 1900, the average annual exports from the port of Leepaja amounted to about 60 million poods, and the imports to about 22 million poods. The average annual exports from the port of Ventspils was then about 17 million poods, and the imports about 3,500,000 poods.

In 1913, these figures had increased in proportion to the growth of railroad traffic at Riga and the increase of general traffic on the Baltic Sea, as is shown in the above table.

The traffic on the Riga-Daugavpils and Krustpils-Ventspils lines comes chiefly from the middle and lower Volga districts, whilst that on the Leepaja-Vainodon line comes from Lithuania, Poland and South-West Russia.

As regards transit, the future development of the broad-gauge railway system of Latvia depends entirely on its connection with the corresponding main lines in Russia and on the exploitation of the immense natural resources existing in marshy districts, where a properly constructed and well-managed railway system is entirely lacking.

A similar development occurred seventy years ago when traffic on the section Riga-Daugavpils (Dunaburg) and at Riga itself, increased to a considerable extent through the construction of the Griase-Tzaritzin railway, which connected with the lower Volga districts, with the Caspian Sea and with the fertile plains of the Black Country.

A similar development took place at Ventspils and Riga, when the Moscow-Ventspils-Rijbinsk railway was constructed ; and even greater developments will take place when the main line is built from Riga to West Siberia via Tomsk, Kusnezki and the Attai region and from Riga to the Caucasus and the Black Sea via Daugavpils (Dunaburg) Mohilew, the Dnieper and Rostov. The former line will permit the transport of corn and wood from the district between the Volga and the Ural mountains, and the natural resources of the Urals, where copper is to be found in considerable quantities, to Kischtim. Latvia will be enabled to draw upon the resources of Western Siberia — wheat, meat, butter and leather — and will further be connected with the basin of the Kusnezki, rich in coal and minerals, which are to be found almost on the surface of the ground ; lastly, at will be connected with the Attai district, which is rich in natural products. The second line affords the shortest and best connection with the basin of the Donetz, the North of the Caucasus and the Trans-Caucasus, the immense natural wealth of which is well known.

Reference must also be made to the Riga-Vilna line, with its branch from Cracow to Bausk, which is an important transit route for Latvian exports. This line crosses Latvia itself, serves the rich and fertile districts of Bausk and Schonberg in Courland, and connects them directly with

Riga; Riga itself is connected with the beautiful watering-place of Baldou, with its sulphur springs.

It is of supreme importance for Latvia to be placed in direct communication with the centres of Riga, Ielgava and Leepaja by a broad-gauge line. At present this connection is effected through the station of Moscheiki, that is, through Lithuania, a friendly foreign country, and Latvia cannot regard this as a satisfactory state of affairs. It is therefore proposed to construct a line from Vecauce or Behne to Saldus (Frauenburg), replacing the existing track by a broad-line gauge in the districts of Saldus, Aispute, Leepaja. In this way the district between Vecauce and Saldus will be supplied with a railway. For local traffic an average of two passenger trains and two or three goods trains per day in each direction sufficed before the war. In those days suburban traffic, especially in the summer, increased to a very considerable extent, especially traffic for the coast of Riga, which was a favourite resort not only of the inhabitants of Riga itself but also of Russians and among others of the inhabitants of Moscow. Important watering-places frequented by the inhabitants of Central Russia are situated along this coast, and the small town of Kemmern with its sulphur-springs and mud-baths was especially well-known.

In course of time the inhabitants of Riga began to spend the whole year at the most popular coastal resorts — at Mdiori and Dubulti (Dubbeln) for example, which gradually became suburbs of Riga. The increase in population and in the number of foreigners frequenting this coast is explained by the health-giving properties of the sea-air, by the favourable local conditions and situation of the Riga coast, and, above all, by the satisfactory railway facilities which were placed at the disposal of the public.

There were, amongst others, through trains from Riga to Kemeri (Kemmern).

The coast of Riga attracted visitors even so early as 1820; it is very favourably situated at a distance of about 18 versts from Riga, and has a dry soil of yellow alluvial sand, covered with a thin layer of loam. This sand is so dry and porous that in a few moments it can completely absorb a large quantity of water. The whole coast of the Gulf of Riga is covered with pine forests which grow even on dunes fifty feet high. These dunes descend to the sea and form a flat shore of hard golden sand.

The sea-floor, which consists of the same yellow sand, gradually slopes away from the coast, and thus renders it possible for persons desiring to bathe to walk into the sea more than a hundred feet. In 1837 about 2,000 foreigners spent the summer on the coast of Riga; in 1850 there were about 15,000, and after the construction of the Inkum Railway in 1877 the number of foreigners increased rapidly.

In 1911 it increased to 65,000, and just before the outbreak of war, according to the applications received by the railway companies, it had reached a total of 100,000.

Owing to the increasing traffic demands, the number of trains to the coast per day was sometimes as much as 60 (30 in each direction), and on the average 50 (25 in each direction). During the season about 3,000,000

passengers were carried — about 30,000 daily. Immediately before the war, the number of trains per day during the season amounted to 100 (50 in each direction).

4. *The Latvian Narrow-gauge Railway System; its Future Development.* — The existing narrow-gauge lines in Latvia are as follows :—

1. Leepaja-Aispute : built in 1900, gauge 1 metre, length of line, 48 km.
2. Ainashi-Smiletene : constructed in 1910-1912 ; gauge, 0.75 ; length of line, 113.2 km.
3. Walk-Plavinas : built by the Lavonian Railway Company before 1903 : gauge 0.75 ; length of line 210.8 km. The section Vecgulbene-Plavinas, 98.4 km. in length, was reconstructed during the war on the normal Russian gauge.
4. Walk-Plahtere : built by the Russian Railway Company ; gauge 0.75 ; length of Latvian section 60.4 km.
5. Ropashi-Nicolais : gauge 0.75 ; length of line, including branches, 24 km.
6. Ligate-Iaunpils-Madlene-Ledmene : gauge 0.75 ; length, including branch, 146 km.
7. Aispute-Saldus : gauge 0.60 ; length 66.5 km.
8. Ventspils-Mazirbe-Stende : gauge 0.60 ; total length 202 km.
9. Meitene-Bausk : gauge 0.60 ; length 32.2 km.
10. Ikschkile-Rapashi : gauge 0.60 ; length, including branches, 30 km.
11. Yekabmeests (Jacobstadt)-Daugavpils section : gauge 0.60 ; total length of Latvian section, 225 km.
12. Dubeni (Duben)-Darbini (Dorbjany) : gauge 0.60 ; length 51 km.

The total length of the local railways is about 1,400 km. At present all the Latvian railways are State-owned and administered by the Government, excepting the line Leepaja-Aispute, but only 818 km. of the latter are at present in use, as the remainder is not in good condition owing to lack of the necessary rolling-stock and materials for repair.

Future Requirements.—In order to develop the existing narrow-gauge system, the available rolling-stock must be increased by repairing the existing engines and coaches which need repair, and by sending abroad for the missing parts and the additional locomotives and rolling-stock required.

In the second place, the narrow-gauge system must be developed in view of its important effect upon the economic prosperity of the country and in view of the development which can be predicted in agriculture, industry and the export of timber on a very large scale.

For these purposes the construction of the following lines is necessary:

(1) A continuation of the Ainaschi (Haynasch) narrow-gauge line to Jaunpabalgt (Naupebalg) and thence to Vicpubalga (Altpebalg) and in a westerly direction as far as Riga (the length of the line is 178 km.)

(2) A connection between Plahtere on the line Walk - Pernau (via Puikele Valmura, and the Limbaschi (Iemsal) line to the sea and along the coast to Riga) and the line from Pubalga near Jugla (length of line about 158 km.).

(3) A local line from Aispute to the town of Kuldiga (Goldingen) continuing towards Stende (length about 82 km).

(4) A connection between Saldus and Ielgava (Mitau) either direct or via Autz and Tukkaf, with two branches.

(5) New local lines in Letgalia for the exploitation of the timber in the district of Lake Luban.

A preliminary survey of the line Smiltene—Pubalga—Riga, which is to be 178 km. in length, has already been carried out and a draft scheme drawn up.

This line will serve the most thickly populated—and in natural products, the richest—district of the former province of Livonia.

Detailed investigations into the commercial possibilities of this scheme shew that the expected traffic will fully guarantee the line as a paying concern.

The following are the chief articles which will be exported by means of this railway:

Timber, part of which will be conveyed north to the Latvian ports of Ainaschi and Salis, and part to Riga ; corn and agricultural products, particularly flax, for which Latvia is famous (the Government will in future protect the cultivation of flax by all means in its power, as this is one of the surest means of improving its foreign credits).

Imports will consist of articles for domestic use among the peasants such as salt, herrings, iron, groceries, manures, and agricultural machinery, the lack of which is very considerably felt. It is estimated that the annual turnover of all these goods will amount to 14,900,000 poods (244,052 tons).

Preliminary surveys for the line Platere - Riga were carried out before the war, so that no obstacles of a technical nature prevent the immediate construction of the line. This line, 158 km. in length, will connect Riga with the town of Limbaschi, which is situated at a great distance from the railway, and will enable the whole district to export its agricultural products to Riga.

Timber, which will be the principal export on this line, can be sent abroad via Milgravis (Muhlgraben), the port of Riga. This line, when constructed, will also aid in the development of the whole Latvian coast, and will afford the inhabitants of Riga the possibility of visiting the pretty countryside of Neubad and Zarnikau in summer.

The construction of a local line from Aispute to Kuldiga, and thence to the junction at Stende (Stenden), would be of great advantage to the inhabitants of Kuldiga (about 15,000), and would also improve communication between Talsi (Talcen) and Leepaja.

At present transit traffic between these towns is carried on by means of horse transport and is most inadequate. A continuation of the line from Saldus to Ielgava (about 83 km. in length) will afford a cheap and convenient means of export for the produce of Saldus to Ielgava and Riga.

From a social and economic point of view the whole of this district is very highly developed ; it is, moreover, thickly populated, most fertile, and its commerce and industry are particularly flourishing.

Again, the possibility of exporting timber from this district- which at present is about 25.30 km. from a railway—to the ice-free port of Leepaja, near the frontier, will considerably raise the value of the timber, and, therefore, increase the prosperity of the line ; its yearly traffic output will amount to 12,000,000 poods (195,000 tons).

5. *Administration of the Latvian Railway System.*—In organising the permanent administration of the Latvian railways, the principle adopted was the establishment of a single Administration, one person being held responsible for each centre. On this principle, the head of each main section manages his own line and all its branches ; the system is divided into five such main sections. The central organisation of the railway administration is called the "Principal Administration" ; it is controlled by a General Director and consists of the following departments: General, Technical, Financial, Administrative and Supply. The directors of the main sections are subordinate only to the General Director; the principal workshops also form independent units—one at Leepaja and the other at Riga—and the directors of these are also subordinate only to the General Director.

6. *Condition of Rolling-stock and Repair of Locomotives.*—As the Latvian Railways once formed part of the Russian railway system, and as they will still serve the transit traffic of Russia and the countries formed from the territory of former Russia, it is obvious that the same type of rolling-stock must be used as was employed before the war. This is all the more necessary in that such rolling-stock of the Russian gauge as Latvia possessed was derived from the Russian railway system. Before the war Russia possessed 38 locomotives for every 100 versts of line. The average distance per month covered by each engine was about 31.00 versts ; 31 different types of engine were used over an average of 1,500 km. of line. Of these engines 50 % were of obsolete type and worn out ; 30 % of them had been more than 25 years in service. Such conditions as these did not conduce to the success of the railway system or to its financial stability. The average load of the trains diminished and the expense for the upkeep and repair of these locomotives increased, as did also the number of isolated far as types. It became necessary, therefore, to provide the Latvian railways as possible with locomotives of a uniform type, as only in this way could these be profitably worked. The type of locomotives required should possess 5 axles (Decapoa) in the case of goods locomotives which may also be used for heavy passenger traffic. The diameter of the coupled wheels should be about 1,450 mm. and the total weight about 70.5 tons ; hauling-power 14,000 kilogrammes. Reckoning as state above that 38 locomotives are required per 100 versts, 330 locomotives of Russian gauge and about 280 locomotives of normal European gauge would be required by Latvia under pre-war conditions of traffic. All sections of the system, excepting those which

are to be electrified, must be supplied with coke or naphtha if the cost of wood fuel is more than the Government can afford ; but apart from the price of fuel, it is probable that the most economic type of locomotive would be that fitted with a petrol engine (Diesel type).

The types and number of locomotives, and the repairs necessary, are shown in the following table.

A. *Stock of Locomotives on July 1st.* 1921.

Gauge	Type	Number	In working order	Awaiting repair	Remarks
Russian gauge (1.524 m)					
Passenger	4-6-0	18	8	10	
—	2-6-0	14	5	9	
—	2-6-2	2	—	2	
Goods	2-4-0	1	1	—	
—	0-6-0	14	10	4	
—	0-8-0	95	41	54	
Total...		144	65	79	
Normal European gauge (1.435 m)					
Passenger	4-4-0	17	11	6	
—	2-4-2	3	1	2	
—	2-4-0	1	1	—	
—	2-6-0	4	2	2	
Goods	0-6-0	16	10	6	
—	2-6-0	15	5	10	
—	2-8-0	2	2	—	
—	0-8-0	7	6	1	
Total...		65	38	27	
Narrow gauge, 750 m/m...	0-8-0	3	2	1	
— —	0-6-0	5	3	2	
— —	0-4-0	5	5	—	
Total...		13	10	3	
Narrow gauge, 600 m/m...	0-8-0	42	23	19	
— —	0-3-0	11	7	4	
— —	0-4-0	5	4	1	
Total...		58	34	24	

B. *Condition of Locomotives and Nature of Repairs.*

Average number of days per month for repair of one locomotive		Average number of locomotives under repair per month.	Remarks.
Russian gauge (1.524 m)	14.0	1.4	The chief repairs are connected with motion and boilers.
Normal Europ. gauge (1.435 m)	6.1	1.9	
Narrow gauge (750 m/m).....	3.0	1.6	
Narrow gauge (600 m/m).....	6.8	1.7	

Before the war the number of goods trucks was 8.7 per verst on the Russian railways (excluding tank-wagons). Taking this as the average for the Latvian railways, the rolling-stock would, amount to 10,000 per 1,135 km. (Russian gauge), and 6,500 per 740 km. (European gauge). The number, type and condition of the present Latvian rolling-stock is given in the following table.

C. *Rolling-stock (July 1st, 1921).*

Type of Coaches	With brake	Without brake	Total	With 2 axles.	With 3 axles.	With 4 axles.
Passenger Coaches.						
1) Russian gauge ..... 1,524 m/m	214	—	214	52	96	66
2) Normal European gauge .. 1,435 m/m	107	1	108	25	80	3
3) Narrow gauge ..... 750 m/m	15	—	15	—	—	15
— — 600 m/m	53	2	55	—	—	55
Goods Trucks.						
1) Russian gauge ..... 1,524 m/m	727	3,182	3,909	3,877	—	32
2) Normal European gauge.. 1,435 m/m	195	572	767	766	—	1
3) Narrow gauge ..... 750 m/m	22	171	193	—	—	193
— — 600 m/m	100	1,051	1,151	485	—	666

D. *Condition of Rolling-stock and Repairs Required.*

Type of Stock		Average time per wagon required for repairs.	Average number of wagons to be repaired per month.	Remarks.
		Passenger Coaches.		
1) Russian gauge	1,524 m/m	6.0 days	13 coaches	Chiefly repairs of motion and internal works.
2) Standard European gauge.	1,435 m/m	9.7 "	21 "	
3) Narrow gauge.....	750 m/m	—	—	
–	600 m/m	—	—	
		Goods Trucks.		
1) Russian gauge	1,524 m/m	3.2 days	96 coaches	Chiefly repairs of motion.
2) Standard European gauge.	1,435 m/m	3.2 "	56 "	
Narrow gauge	750 m/m	1.7 "	5 "	
–	600 m/m	1.0 "	10 "	

The load of most goods trucks with two axles is 16.38 tons per tare of 7.21 tons; the tare coefficient therefore is 0.44.

Details of staff and passenger traffic on the Latvian railways will be given later.

Generally speaking, the railways are in quite a satisfactory condition with the exception of a few sections amounting to about 150 km., where the rails, which are of a short type are very worn and need to be immediately replaced. It is proposed to spread this work over a period of 5 years, repairing 30 kilometres of line every year and replacing the worn-out rails by those of the second line, previously removed.

The rails are laid on wooden sleepers with iron chairs. The number of sleepers on the different sections of the line varies from 1,400 to 1,500 to each kilometre. The total number of sleepers on all the principal lines amounts to 2,441,000, of which 1,452,000 have been treated and in use since 1906 ; the newest were laid down in 1907, so that a portion of the sleepers have been in use for fifteen years, although normally their period of utility should not exceed ten years. Sleepers which have not been treated and which should not be used for more than five years have been in use for about 12 years ; this abnormal state of affairs is explained by the foregoing reasons, that is to say, by the non-renewal of the sleepers. Although the repair of the running track has involved considerable work and expense, a normal utilization of sleepers has not yet been attained.

Ninety-thousand sleepers need to be renewed during the present year, and it is proposed to utilise a similar number next year, whilst 50,000 will need to be replaced annually during the following years.

This calculation is based on the employment of non-treated sleepers, as at present there are no factories for making treated sleepers in Latvia, those which existed formerly having been transferred to Russia. As soon as these factories are reconstructed, the quantity of sleepers to be replaced will be reduced by half ; it is, moreover, proposed to replace wooden by steel sleepers in the future.

The ballasting of the railway lines is generally satisfactory, as the work of upkeep was carried out under normal conditions last year, except in the case of certain sections on secondary lines which will in any case be included in the programme of work for the present year.

The gradients on the track do not exceed 0.008, with the exception of the Plavinas Vecgulbene section, which has a gradient of 0.016 ; this line has been transformed from 0.75 m. to the Russian gauge.

The work necessary for lowering this gradient has been postponed owing to financial difficulties.

The smallest radius of curvature on the lines in use is not higher than 500 metres ; it varies from 350 to 400 metres in the case of the lines which were laid down during the war. Lines which have a gauge of 0.75 metres possess a sufficiently strong superstructure, whilst the lines with a 0.60 metre gauge are only secondary. The rails on the 0.75 metre lines weigh from 11 to 15 lbs. per foot and are from 28 to 35 feet in length. They are laid on wooden sleepers, with an average number of 1,500 to each kilometre. The renewal of the latter is dealt with in a manner similar to that employed for the broad-gauge track.

The state of the lines and their ballasting is in every way satisfactory. The gradients amount to 0.016, the smallest radius of curves not exceeding 300 metres.

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* *

Very considerable damage was done to railway buildings during the war ; the following table will show its extent :—

(a) Official buildings on the lines and staff quarters, completely destroyed	17 %
(b) Buildings for use of passengers, and platforms	14 %
(c) Hangars for goods, and ramps	22 %
(d) Other buildings	20 %

The value of the buildings, allowing them to possess 60 % of their original value, represents to-day :

(a) Official buildings, staff quarters, etc.	3,300,000	gold roubles
(b) Buildings for use of passengers and platforms	1,420,000	» »
(c) Hangars for goods, and ramps	1,270,000	» »
(d) Other buildings	4,500,000	» »
Total	10,490,000	gold roubles

Pre-war value :

$$\frac{10{,}490{,}000.000}{60} = 17{,}485 \text{ gold roubles.}$$

To reconstruct everything that has been destroyed, the following sums would be required.

(a) Official buildings, staff quarters, etc.	1,330,000	gold roubles
(b) Buildings for use of passengers, and platforms	465,000	» »
(c) Hangars for goods, and ramps	685,000	» »
(d) Other buildings	2,740,000	»
Total	4,740,000	gold roubles

Thirty-five per cent. of the total number of buildings were in need of repairs, only one-third of which were carried out. The most urgent work was carried out in 1920.

In 1921 the following sums will be necessary for reconstruction work, apart from upkeep and repairs :

Reconstruction of 35 % of the office buildings, staff quarters, etc.	440,000	gold roubles
Reconstructiono f 66 % of passenger buildings and platforms	300,000	» »
Reconstruction of 33 % of goods hangars and ramps	228,000	» »
Reconstruction of 20 % of other buildings	450,000	» »
Total	1,418,000	gold roubles

A further sum of 2,800,000 gold roubles will be needed for the reconstruction of all the buildings destroyed, which will be taken in hand after the termination of the programme proposed for the current year.

In addition to the above works it is indispensable to :

1. Replace immediately the loading cranes in the maritime stations of Riga, Leepaja, Ventspils and Mangali (lifting capacity 65 to 5 tons). Twenty-two cranes are needed.

2. Re-lay some tens of kilometres of sidings.

3. Instal weighing machines for trucks, turntables for locomotives, etc.

Total cost involved . . . 654,000 gold roubles

The weak point of the Latvian railways is the unsatisfactory state of the watering stations and reservoirs. In 86 buildings of this kind the following plant was destroyed, or evacuated to Russia : 47 boilers, 57 pumps and 27 reservoirs. After deducting what has already been repaired, 151,700 gold roubles will have to be spent to re-establish normal conditions.

It is proposed subsequently to construct 60 kilometres of sidings lines, etc., making a total expenditure of 200,000 gold roubles.

Bridges.

Total number of Bridges on the Latvian Railways.

(a) On the normal and Russian gauge lines :

Steel bridges	5,048	metres
Wooden bridges	2,719	»
Cement and iron bridges	1,157	»
Stone, cast iron and wooden viaducts	467	»
(b) On narrow-gauge lines	7,202	»

During the war 75 to 80 % of these bridges were destroyed, some of them on more than one occasion. Sixty per cent. of the total number have been rebuilt and the remainder will be replaced in 2 or 3 years. The following, which have not been rebuilt, are not included in those mentioned above.

Bridge across the Dvina near Ventspils.	260.39	metres
» » » » » Daugaopile	264	»
» » » » » Bulduvi	281.38	»
» » » » » Jugla	63.9	»

The cost of rebuilding the above bridges is calculated at 1,200,000 gold roubles, and the work will be spread over two periods of three years.

The following table shows the quantity of rolling-stock per km. at present available in comparison with 1914.

	On 1/7/21 in Latvia		In 1914		In Denmark in 1919		In Finland in 1914	
	Locomotives	Wagons	Locomotives	Wagons	Locomotives	Wagons	Locomotives	Wagons
Russian gauge		0.18		0.22	—	—		0.32
Passengers	0.127	—	0.26	—	—	—	0.14	—
Goods		3.4		8.2	—	—		4.13
Normal gauge		0.15	—	—	—	0.84	—	—
Passengers	0.088	—	—	—	—	—	—	—
Goods		1.04	—	—	0.6	6.00	—	
Average per kilometre	0.110	2.35	0.26	7.4	0.6	6.1	0.14	4.5

If we take as a basis the normal figures of pre-war traffic, assuming the minimum number of locomotives required at 0.26 per Km., and deducting those which are being worked, 400 more locomotives are required for normal service on the broad-gauge railways.

To make up the normal number of wagons (7/4 per km. before the war) about 10,000 goods trucks and a large number of passenger coaches would be required.

State of Rolling-stock.

Period	Wagons under repair	Wagons in use	Locomotives under repair	Locomotives in use
1/IX/1919	54.5 %	45.5 %	52 %	48 %
1/IX/1920	19.0 %	81.0 %	34.0 %	66 %
1/III/1921	21.0 %	79.0 %	31.0 %	69 %

This table shows that there is a considerable increase in the number of locomotives and wagons in comparison with 1919. It must be remembered that the lack of reserve spare parts results in an increase on the amount of rolling-stock under repair, and that the diversity of types of locomotive occasions great difficulty in the manufacture of these spare parts.

The " useful " load of goods trucks with two axles amounts to 16.38 tons ; the tare to 7.21 tons ; the co-efficient of the tare, 0.44.

There are only 14 repair shops for upkeep works; the most important ones are situated at Riga and Leepaja. The total number of workmen

is 2,659, with 483 machine-tools, of which 421 are for working metal, and 62 for working wood.

The working day is eight hours ; some workmen do piece-work, and others work by the day.

Work per Month.

1. Repairs : 2 locomotives, 8 passenger coaches, 80 goods trucks.
2. Works of upkeep : 200 locomotives, 12 passenger coaches, 1,000 goods trucks.

Record of Locomotives in 1920.

	Standard gauge 1.435m/m	Russian gauge 1.524m/m	Light Railway 600 m/m	Light Railway 750 m/m
	kilometres	kilometres	kilometres	kilometres
(1) Average distances covered by each locomotive per month :				
(a) with trains	128,000	81,000	45,000	18,000
(b) without trains	8,300	6,000	—	—
(c) shunting	24,000	21,000	—	—
(d) in reserve	9,500	6,000	—	—
(e) total distance	170,000	110,000	50,000	20,000
(2) Average daily run of a locomotive	88.0	107.0	28.7	61.2
(3) Average daily run of a working locomotive.....	130.0	180.0	—	—
(4) Number of locomotives..	65	34	58	13

Comparing these facts with the reports on the Riga-Orel Railway (formerly Russian), it may be noted that in peace time there was one locomotive for every 71.5 to 96 kilometres.

These figures show the great extent to which locomotives are worked at the present time in spite of their diminished capacity, which has become evident not only in Latvia, which has undergone the horrors of war and of Bolshevik rule, but also in other countries.

In 1920, out of 100 locomotives, there were :

4.16 without trains, 24.86 on shunting work, and 7.17 in reserve, leaving about 64 for ordinary service.

Use of Wagons in 1920 (in axle-kilometres).

	Standard gauge 1.435 m/m	Russian gauge 1.524 m/m	Narrow gauge 600 m/m	Narrow gauge 750 m/m
(1) *Passenger Coaches.*				
(a) Number of coaches	108	185	40	15
(b) Number of axles (coaches)	302	439	160	58
(c) Number of seats in carriages	4,458	7,177	800	408
(d) Average axle km. per vehicle per month ...	2,400,000	1,620,000	250,000	190,000
(2) *Goods Trucks.*				
(a) No. of trucks	768	2,379	587	183
(b) No. of axles	1,538	4,786	2,148	718
(c) Average axle km. per vehicle per month ...	2,400,000	2,800,000	1,100,000	280,000
(3) *Co-efficient of journeys per vehicle*	3.00	6.00	—	—

The high coefficient for the average journey per goods truck on the Russian gauge is explained by the fact that there is great lack of them on the broad gauges.

Record of Trains (in train-kilometres).

	Standard gauge	Russian gauge	Narrow gauge 600 m/m	Narrow gauge 750 m/m
1) Average journey per train per month :				
a) Passenger trains	90,000	56,000	16,500	14,800
b) Goods trains	30,500	18,500	24,000	1,800
c) Trains for transport of railway material	7,500	5,000	4,500	1,000
d) Total	128,000	80,000	45,000	17,600
2) Average no. of trains per month :				
a) Passenger trains	1,200	360	300	180
b) Goods trains	750	700	900	160
c) Service trains	150	140	200	60
d) Total	2,100	1,200	1,400	400
3) Average no. of coaches per train : No. of wagons. / No. of axles.				
a) Passenger	6.52 / 13.19	9.61 / 19.35	4.14 / 16.56	3.62 / 14.48
b) Goods	17.72 / 35.73	25.00 / 50.14	7.3 / 28.12	7.54 / 30.16
c) Mixed	11,99 / 30.40	23.00 / 48.38	5.77 / 23.08	7.00 / 28.24

The smaller number of coaches on passenger trains is explained by the fact that this table includes excursion *(trains de plaisir)* and suburban trains, which generally consist of a smaller number of coaches, and also by the lack of locomotives. The following data give further details regarding the work of the railways in general :

1. *Passenger Traffic.*

(a) Number of passengers carried 1920	5,700,000
(b) Average number of passengers carried per month .	470,000
(c) Number of passenger-kilometres per year	365,000,000
(d) Average number of passenger-kilometres per month	30,000,000
(e) Distance of average length of journey per passenger	73 km.
(f) Number of passengers as compared with capacity of trains	88-120 %

2. *Goods Traffic.*

(a) Tonnage of goods carried in 1920	1,229,500
(b) Average tonnage per month	103,780
(c) Ton-kilometres per year	131,109,600
(d) Do. do. per month	10,925,800
(e) Average tonnage transported per kilometre . . .	106.6
(f) Average no. of wagons necessary for daily traffic.	2,000
(g) Number of loaded trucks	600

3. *Luggage.*

(a) Tonnage of luggage transported per year	35,050
(b) Average amount of luggage transported per month	2,900

The above data points to a great scarcity of passenger coaches, the number of which was increased by 100 goods wagons which were adapted for this purpose.

Goods transport is in an even less satisfactory condition ; only 30.3 % of the total number of wagons necessary for the transport of goods are available for daily traffic requirements.

The following table gives the amount of fuel used in 1920 on trains, in buildings, stations, etc.

Fuel.

Gauge.	Average consumption of wood over 100 engine-kilometres (cubic metres).	Consumption for 1920 (cubic metres).	No. of locomotives	Remarks
Locomotives of Russian gauge	12.7	164,000	34	1) 9,65 cubic meters = 1 cubic sagene.
Locomotives of standard gauge	11.1	226,000	65	
Locomotives of narrow gauge, 600 m/m	7.0	42,000	58	2) The coal equivalent of 1 cubic sagene of wood is 110 poods of coal; 1 cubic metre of wood = 11,4 poods of coal; 100 cubic metres of wood = 18,67 tons of coal.
Locomotives of narrow gauge, 750 m/m	8.3	20,000	13	
Total consumption of locomotives	—	452,000	—	
Various requirements	—	148,000	—	3) Towards the end of 1920 a cubic metre of wood cost from 105 to 267 Latvian roubles.
Total		600,000 (representing about 85,000 tons of coal).		

When the traffic is increased to pre-war standards, it is anticipated that the consumption of coal will amount to 400,000 tons per annum; should it be impossible to obtain this, it will be necessary to cut down annually about 8,000 hectares of forest, but this consumption of wood would seriously affect the timber resources of the country, which lacks coal of its own, while imported coal would be too expensive. In these circumstances various sections must be electrified as soon as possible; for this purpose the very considerable hydraulic power of the Western Dvina will be exploited.

* * *

On January 1st, 1921, the permanent railway staff, including that of the railway administration, amounted to 8,527 (4.7 per kilometre).

Day Workers	7,138
Total	15,565 (8.07 per kilometre)

Average pay of workers per hour:	5 r. 50 cop.
Average pay of day workers per hour:	4 r. 00
Average pay of engine drivers per month	1,500 roubles.

The pay of the staff increased by 85 % between January 1st, 1920, and January 1st, 1921.

* * *

Passenger fares in 1920:

Third class per kilometre	24 cop.
Second class	48 cop.

Children from 5-10 years of age, half price.

Transport of luggage:

10 lbs. for each kilometre	2.25	cop.	
First-class goods per kilom.	4.	cop.	(1 poud)
Second-class » » »	2.8	cop.	»
Third-class » » »	1.8	cop.	»
Fourth-class » » »	1.32	cop.	»
Fifth-class » » »	0.96	cop.	»
Sixth-class » » »	0.72	cop.	»

Starting from January 1st, 1921, passenger rates were increased by 50 % and luggage rates by 100 %; the goods rates were increased by 100 % on February 1st, 1921.

Results of the working of the railways from January 1st, 1920, to January 1st, 1921.

Receipts:

(1) Passenger transport	89 mill. r.	= 35 %
(2) Luggage transport	22 mill. r.	= 9 %
(3) Goods transport	135 mill. r.	= 51 %
(4) Receipts from various sources	14 mill. r.	= 5 %
Total:	260 mill. r.	= 100 %
Expenses	335 million roubles.	

This deficit of about 75 million roubles is explained by the low rates, which the Government refrained from increasing with a view to facilitating the recovery of the economic life of the country.

The increase of 85 % in the cost of labour increased in its turn the cost of fuel and of various materials ; for this reason expenses are higher than receipts.

In the working budget for the present year no provision has been made to meet this deficit. Although the Latvian railways are the property of the State, it was decided to consider them as a commercial undertaking from the purely economic point of view.

It is obvious that the expenses for restoring buildings, bridges, workshops, etc., cannot be covered by current receipts ; for this purpose the State is opening special credits.

Proposed Plan for Electrification.

The question of electrifying the Latvian railways has been carefully considered by the Railway Administration ; as has been shown above, the working of the system necessitates the consumption either of 600,000 cubic metres of wood, costing 28,200,000 Latvian roubles, or of 85,000 tons of charcoal imported from abroad at a cost of 103,700,000 Latvian roubles (at 20 roubles per pood). There is little likelihood that such a quantity of charcoal could be obtained under existing conditions. On the other hand, the river Dwina in Latvia possesses hydraulic power estimated at 396,000 h. p. At Dole, near Riga, there is a waterfall of 12 metres, the force of which is estimated at 65,000 h. p. ; at Kegum there is another fall of 15 m., giving 85,000 h. p. ; at Ashradan another of 9 m., astimated at 36,000 h. p. ; at Kokneje another of 21 m., estimated at 120,000 h. p. ; at Aivuaja another of 15 m., giving 42,000 h. p. ; at Jebrabmeests another of 5 m., giving 18,000 h. p.

The electrification of the railway by means of this water-power would prevent the destruction of national forests and would reduce to a minimum the import of charcoal, which is for Latvia an economic question of supreme importance.

In view of the urgency of the matter, the Administrative authorities of the Latvian railways estimated and analysed the cost of, and advantages to be gained by, the electrification of their system.

II.

MARITIME AND WATERWAY NAVIGATION.

Summary of Situation of Latvian Ports before the War and at present.

Before the war the port of Riga was one of the most important, chiefly as regards the timber trade. Situated at the mouth of the River Dwina on the Baltic Sea, it extends 26 km. from the river mouth. The navigable channel at the entrance of the jetties has a depth of 9 metres ; in the port itself the depth is only from 7 m. to 8.50 m. The central part of the port is situated in the town of Riga at a distance of 13 km. from the mouth, and its inner part is bounded by the railway bridge. The section of the port situated above this bridge is shallower and is consequently not accessible to ocean-going vessels. It was used largely for the timber trade and had anchorage for about 16,000 rafts. The quay sides extend to a length of about 3,200 metres, almost the whole length of which is connected with the railway. Along these quays are numerous warehouses and sheds. At the customs house there are four sheds covering an area of 8,100 sq. metres with a capacity of 23,000 tons.

On the island of Andrea there is a grain elevator with a lifting capacity of 12,000 tons, a refrigerator with a capacity of 400,000 barrels, large herring depots, 9 warehouses of various dimensions, and other buildings with a total capacity of 50,000 tons.

There also exist in the export port some 17 warehouses with a capacity of 80,000 tons. Apart from these quays, situated in the central part of the port, the latter also possesses accessory quays more than 20 km. in length used to a certain extent by sea-going shipping, but principally for the prosperous industries of Riga and for coal transport. The largest of these accessory unloading quays are situated at Mullgrave and Bolderay, near the mouth of the river. They are also in direct connection with the railway, and at Mullgrave there are 12 warehouses for coal transport with a capacity of 30,000 tons. Besides the warehouses already mentioned, which are situated near the quays, there are others in the town itself which belong to private individuals. Amongst these, 43, with a total capacity of 120,000 tons, are called the Red Warehouses. These warehouses were once used for flax and hemp, but shortly before the war, when the railway system was reconstructed, they ceased to be used for this purpose.

In the year of the outbreak of war the export quays had begun to increase in size very considerably, and a beginning was made with the construction of warehouses several stories in height. This work, however, was stopped by the war.

The port of Riga was very short of cranes, and vessels had to load and unload their cargoes from their own resources. For particularly heavy loads there were three quay cranes with a lifting capacity of 10 to 25 tons,

and a floating crane with a lifting capacity of 66 tons. The construction and repair of vessels of small tonnage was undertaken by a certain number of small shipbuilders. For the repairing of larger vessels there was a floating dock with a capacity of 3,000 tons.

During the winter months the Dvina was kept open for navigation by means of several ice-breakers. A special ice-breaker existed in case the Gulf of Riga should become ice-bound.

* * *

The two other ports of Latvia, Wentspils and Leepaja, are situated on the east of the Baltic Sea. Before the war they were the only Baltic ports in the west of Russia which were free of ice in all seasons. The first is situated at the mouth of the River Wenta. It includes a large outer port surrounded by dykes, and the port itself, which is formed by the mouth of the river of the same name. The River Wenta, for the first 4 kilometres from its mouth, is 7,501 metres in depth. At a distance of 16 km. from its mouth it is accessible to vessels drawing 6 metres. Before the war the depth at the entrance of the dykes was more than 9 metres. As at Riga, the upper part of the river Wenta was used as a port for timber, with this difference, however, that here vessels had direct access to the rafts and timber yards. The lower part of the river was used for maritime navigation. The left bank, which was connected directly with the town, was used for local inland water transport, while the right bank was used for import and export trade. It was here that the customs house was situated, the quays of which were 650 m. in length, and the quay reserved for export 1.200 km. in length. The customs quays, and also those port quays reserved for export, were provided with warehouses ; the export quay in particular was plentifully supplied with these. The capacity of these warehouses amounted to as much as 170,000 tons.

There was also a grain elevator, with a capacity of more than 50,000 tons, a refrigerator, and several cold-storage chambers for perishable goods, one of the refrigerators having a capacity for 400,000 barrels of oil. Moreover, the right bank was provided with numerous railways. In view of the remarkable development of the port of Windau in the 10 years which preceded the war, and also in view of the fact that almost the whole of the right bank was used for commerce, a beginning was made shortly before the war with the adaptation of the left bank for commerce, in the direction of the town, and it was proposed to build a railway there. But the war prevented the completion of a railway bridge across the river and the quays called "American quays", of which only the submerged part was built. As regards cranage, the port possesses only two quay cranes with a lifting power of 15 to 46 tons.

* * *

Leepaja, the most southern port of Latvia, is situated on the canal which connects Libau with the Baltic Sea. Before the war the port of

Leepaja consisted of a military port and a commercial port. The latter included the canal properly so called, which was termed the winter port, and the shore of the anchorage, which was protected almost everywhere by stone dykes with a length of more than 5,500 metres.

Before the war the depth at the entrance of the dykes and breakwaters was about 9 m. 50 ; along the quays of the anchorage it varied from 8 m. to 8 m. 50, and along the canal and in the winter port, from 6 to 7 metres. As the port of Libau was subject to the military regulations governing fortresses, building of any kind in the winter port and on the shore of the anchorage was prohibited, as was also the construction of temporary sheds. Warehouses belonging to private persons, such as herring depots and elevator plant, were all situated on the two banks of the canal. The total capacity of these warehouses amounted to about 174,000 tons. There were also in the town, near the port, numerous warehouses with a capacity of 82,000 tons. This figure did not include the elevators and herring depots, which had capacities respectively of 160,000 barrels and 16,000 tons. Besides several small cranes, the port possessed for commercial purposes a floating crane with a lifting power of 35 tons, and a travelling crane for unloading coal. Shortly before the war the Russian Government decided to make Libau a free port, and intended to build new unloading quays and to provide them with up-to-date equipment ; the outbreak of war, however, put an end to all these plans.

At present the former military port of Libau may be used for commercial purposes. Besides the anchorage, which is protected by breakwaters, the military port included a deep channel connected with two basins which contained large workshops and two large dry docks. The banks of the canal are as yet unprovided with quays, but the stone quay of one of the basins, which has a length of 700 m., can at once be utilised for the coal trade, while the barracks could without difficulty be transformed into warehouses.

The entrance to the military port is everywhere from 9 m. to 9.50 m. deep. As regards cranage, the port contains a powerful floating crane with a lifting power of 130 tons.

The sea route to the ports of Latvia is quite safe. It is marked by numerous lighthouses, the most important of which are those of Libau, Riga and Windau. All the other lighthouses are situated along the coast of Latvia, with the exception of one which stands at the southern point of the island of Esel.

Of these three ports Windau has suffered most. The principal quays and the two cranes have been blown up. Costly machinery, such as elevators and refrigerators, has been removed ; dykes have in several places been destroyed. The elevator and refrigerator buildings, however, and also most of the warehouses, are almost intact, and require but little repair. The depth of the navigable entrance to the river has not decreased. Silting has only taken place in the outer port, particularly at the bar situated at the entrance of the port ; the depth of this was formerly 9 m., but is now no more than 5 ; a dredger of average power would enable the sand to be removed in a few weeks. Moreover, navigation is hindered by the wreck of a cargo vessel which foundered in the outer port. The removal of this

wreck would not offer great difficulties if the necessary equipment were available. The port of Libau suffered very little during the war ; all that is required is to make certain repairs to buildings which have been neglected. Although a certain decrease may be noticed in the depth of the navigable channel, the port is accessible to large vessels. The entrance to the southern part of the port is blocked by several wrecks ; these, however, do not form a serious obstacle, as the port possesses two other entrances. In the military port the workshops alone have suffered.

As regards the port of Riga, its condition is intermediate between those of Libau and Windau. The quays have not suffered in any way ; a few warehouses alone have been destroyed. At present the remaining warehouses in the island of Andrea and those of the export port have a total capacity of 100,000 tons, but almost all the floating docks, floating cranes, ice-breakers and dredgers have been removed from Riga. As a result, the dredging operations necessary to restore the former depth of the navigable channel are greatly hindered. The remaining dredgers and the two vessels provided with dredging pumps are insufficient to enable this work to be carried on with the speed that is desirable. At the present moment, therefore, the port is accessible only to vessels drawing from 6 m. to 6.50 m.

In conclusion, we may say that the Latvian Government is taking most energetic measures to bring the ports again into working order. Besides such repairs as are more or less important, the work of rebuilding the quays, cranes and warehouses which have been destroyed has been begun, but if the floating equipment, particularly the dredgers which were removed during the war, were restored by Russia, it would be possible to carry out the dredging with all necessary speed.

LITHUANIA.

The Proclamation of the Independence of Lithuania took place on February 16th, 1918.

The Constituent Assembly, elected by universal suffrage, held its first meeting on May 15th, 1920.

As a democratic Republic, Lithuania entrusted the legislative power to a single Chamber, and the executive power to the President of the Republic and Council of Ministers.

In accordance with the Treaty of Peace of Moscow of July 12th, 1920, the area of Lithuania is about 85,000 square kilometres (about three times the size of Belgium) with a population of 4,500,000.

The Lithuanians, a separate branch of the Indo-European family, speak a language resembling Sanskrit.

Eighty per cent. of the Lithuanian population, which is chiefly predominently agricultural, is occupied in farming, cattle-breeding and forestry. The forests cover 20 % of the total area of the country, and yield annually a produce estimated at 2 million cubic metres. One million cubic metres are available for export.

Industry has been destroyed by the war, but tanneries, breweries, distilleries, steam- and water-mills, saw-mills, paper-mills are being reconstructed, while numerous small spinning-mills are being established to deal with the country's abundant yield of flax.

The note circulation consists of Lithuanian marks ("ostmark") and German marks ("reichsmark"), both guaranteed by Germany and both subject to the same rate of exchange.

The estimated expenditure for the Budget of 1920 is 768 million marks.

The revenue is derived from direct taxes on landed property and buildings and from succession duties. Indirect taxation takes the form of excise duties on matches, tobacco and alcohol, fees for export licences, customs duties, etc. The Budget deficit is trifling. (84 million marks).

Lithuania is not burdened with outstanding debts, nor with war debts properly so called.

From the economic point of view, Lithuania is a comparatively rich country.

The grave difficulties by which she is faced are of a political nature, and are due to the occupation of the south-eastern part of the country by

Polish regular troops and by rebel troops (commanded by General Zeligowski).

On the other hand the productive capacity of Lithuania is diminished by the artificial barrier which separates the territory of Memel (now under the provisional administration of the Allies) from the mother-country, and thus deprives Lithuania of her natural maritime outlet to Western Europe.

I.

RAILWAYS.

A. Standard-gauge Railways.

(1) *Length of Track.*—On the territory of Lithuania, as determined by the Treaty of Peace of Moscow of July 12th, 1920, between Russia and Lithuania, the length of standard-gauge track is as follows:—

Lines built up to 1913	1,621 km.
Lines built during the German occupation of Lithuania . . .	299 »
Total	1,920 km.

All railways belong to the State.

(2) *Lines of International Importance.*—The chief railway-lines which cross Lithuania are the following:—

(a) Berlin, Insterburg, Eydtkuhnen, Virbalis, Kaunas (Kovno), Vilnius (Vilna), Dvinsk, Petrograd.

(b) Vienna, Warsaw, Vilnius (Vilna), Dvinsk, Petrograd.

(c) Libau, Sauliai, Radviliskis, Dvinsk, Moscow, (in bad condition from a technical point of view).

(d) Koenigsberg, Insterburg, Kaunas (Kovno), Vilnius (Vilna), Minsk, Komel, Crimea.

(e) Berlin, Koenigsberg, Insterburg, Tilsitt, Sauliai, Mitau, Jakobstat, Kreizburg, Stockmanshof, Pskof, Petrograd.

(3) *Length of Lines at present operated by the Lithuanian Government.*—Since the recent occupation of the south-eastern part of Lithuania by the regular troops commanded by General Pilsudski, and by the rebel troops under General Zeligowski, the Lithuanian Government has only administered 943 kilometres out of 1,920 kilometres.

(4) *Staff.*—The staff employed on the railway lines in operation in 1913, that is to say, on 1,621 kilometres, consisted of 17,666 persons, an average of about 11 employees per kilometre.

On December 31st, 1920, the staff employed on the railway system of 943 kilometres numbered 4,493, an average of 4.8 employees per kilometre.

After the evacuation by the German troops of occupation (1918), the Lithuanian Government, when resuming control of the railways, had great difficulty in providing competent staffs, since the majority of Lithuanian railway employees were in Soviet Russia. The peace with Russia has made possible the return, amongst others, of railway experts, and the railway staff is now nearly up to requirements.

(5) *Track.*—The ballast on the whole railway-system is sufficient, and of excellent quality, except on the Vilnius (Vilna) Lida line, where the gravel is too light ; here it requires complete renewal.

The sleepers are in bad condition, for they have been left in disrepair throughout the war.

The maintenance of the whole railway-system requires about 400,000 specially-treated sleepers a year.

The system which is being operated by the Lithuanian Government requires about 200,000 sleepers a year. All the factories for treating sleepers have been destroyed. A new factory, which is being built, with a capacity of 200,000 sleepers, will be opened in March 1921.

Track plant : cross-overs, sleepers, points, etc., are in good condition.

The condition of signals on the line is satisfactory.

(6) *Permanent Works.*—Thirty per cent of the stations were destroyed during the great war in the fighting between the Russian and German Armies, or by the Polish troops during their retreat after the last battle with the Red Army. On the territory not occupied by the Polish troops and administered by the Lithuanian Government, the ruined stations have been provisionally rebuilt. As for such stations as were not destroyed, no work was done on them throughout the war, and they require thorough repair ; the Lithuanian Government is carrying out the most necessary repairs so far as its means permit.

All the railway-bridges are temporary (of wood) and require immediate reconstruction, except on the line Virbalis-Kaunas (Kovno)-Vilnius (Vilna) where they are of metal and in good condition.

(7) *Rollin gstock.*—In 1913, the rolling-stock on the present Lithuanian system was as follows (broad gauge) :—

Express locomotives	85
Goods and shunting locomotives	510
First-class coaches	51
Mixed first and second-class coaches	34
Second-class coaches	136
Third-class coaches	425
Fourth-class coaches	85
Saloon coaches	17
Baggage vans	34

Postal vans	20
Special coaches for the transportation of criminals	17
Covered goods trucks	10,200
High-sided flats	170
Flats	3,400
Tank waggons	6
Special waggons	1,350

All this rolling-stock was carried off or partially destroyed by the Russian Army during its retreat.

When they were in occupation, the Germans transformed the broad-gauge lines into standard-gauge lines, and used their own rolling-stock on the Lithuanian lines until their evacuation at the end of 1918; they then carried off their own rolling-stock, but allowed the Lithuanian Government to hire about 30 engines and a certain number of coaches and trucks in very bad condition.

The Lithuanian Government is making great efforts to cope with the serious shortage of rolling-stock. Thirty locomotives have been ceded under the terms of the armistice.

Under the agreement entered into in December 1919 between General Niessel, of the Allied Military Mission, and the German Railway Administration, Lithuania was to receive 88 engines and 1,400 waggons, but Germany has only handed over 58 engines, and 889 waggons (passenger coaches and goods trucks).

The Government has been completing its rolling-stock as best it could with the resources at its disposal, and, on December 31st, 1920, possessed :

Express locomotives	26
Goods and shunting locomotives	89
Mixed first- and second-class coaches	16
Third-class coaches	113
Fourth-class coaches	14
Saloon coaches	3
Baggage vans	24
Postal vans	6
Covered goods trucks	552
High-sided flats	189
Flats	454
Tank waggons	11
Special waggons	11

(8) *Repair Shops.*—In 1913 there were two central workshops on Lithuanian territory: one at Vilna (Vilnius), for repairing locomotives, and the other at Kovno (Kaunas), for repairing waggons and coaches. These workshops were very well equipped with machinery, tools, and materials, representing a sum of about 5,000,000 gold roubles.

During the war, these workshops, like the depot workshops, were destroyed.

The Lithuanian Government has re-established repair shops for waggons and coaches at Kovno (Kaunas), and they have set up repair shops for locomotives at Chavli (Sauliai), but owing to limited resources, the equipment of these shops is very inadequate.

(9) *Fuel.*—The question of fuel is one of the chief difficulties in railway operation. The amount of coal necessary for all the lines is from 120,000 to 140,000 tons per year, or about 80,000 tons for the line at present operated by the Lithuanian Government.

In view of the present international coal situation, the Lithuanian Government is still unable to procure this small quantity of coal, except at excessive prices, and is therefore obliged to run its locomotives on wood, although the cost price of this fuel is also high, not to mention inconveniences in operation.

On December 31st, 1920, the stock of fuel was as follows: 5,000 tons of coal and 10,000 cubic metres of dry wood.

(10) *Results of Operation.*

In 1913.	Gold roubles
The gross receipts of railways on Lithuanian territory	24,000,000
Expenses	13,000,000
Net profits, without counting the paying off of capital for construction and improvements	11,000,000

which means a net profit of:

11,000,000 : 1,621 = 6,786 gold roubles per kilometre.

The receipts (24,000,000 gold roubles) were derived as follows:—

(a) carriage of 889,937 passengers (469,416,500 passenger kilometres)	4,730,000
(b) carriage of baggage (18,664,762 kilometre-tons)	847,885
(c) carriage of goods (by goods-trains) (1,539,010,821 kilometre tons)	18,449,578

In 1920.	German marks
The gross receipts were	52,649,000
Expenses of operation	65,000,000
Deficit for the year 1920	12,350,000

which makes a deficit of:

12,350,000 , 943 = 13,096 German marks per kilometre.

The receipts of 1920 were derived as follows:

(a) carriage of 682,000 passengers (47,740,000 passenger-kilometres)	16,690,000
(b) carriage of baggage	4,570,000
(c) carriage of goods (by goods-trains) (66,250,000 kilometric tons)	17,259,000
(d) carriage of the army at a reduced rate	14,130,000

The deficit is due :

(*i*) To the political difficulties created by the occupation of Southern Lithuania by Polish troops, which obliges Lithuania to remain on a war footing, and in consequence prevents her from making the necessary efforts for a speedy improvement of the economic situation. Military movements seriously impede civilian traffic.

(*ii*) To the lack of resources for obtaining rolling-stock (principally waggons) in proportion to the economic development of the country.

(*iii*) To the disorganisation of economic life in the neighbouring States, and particularly in Russia, Lithuania being a country of transit between Western Europe and Russia.

(11) *Estimates.*—In order to restore to their normal condition, the Lithuanian railways necessary for local needs and international traffic — after the economic reconstruction of Russia — the Lithuanian Government estimates that the following expenditure will be required :

	German marks
(a) Reconstruction of bridges which have been destroyed about	30,000,000
(b) Laying out of new route for the railway lines built by the Germans during their occupation, in order to limit the gradients to from 6 to 7 millimetres per metre	25,000,000
(c) Completion of the signalling system, and of the telephone and telegraph system	10,000,000
(d) Reconstruction and repair of stations, warehouses, workshops, stores, water standards, etc., destroyed during the war	30,000,000
(e) Fitting up of repair shops and warehouses	75,000,000
(f) Purchase of rolling-stock :	
60 express locomotives	120,000,000
410 goods and shunting locomotives	738,000,000
540 coaches of different classes	324,000,000
13,000 goods waggons of different kinds	975,000,000
Various materials and spare parts for one year	70,000,000

In fact, to restore the railway lines to a normal condition the necessary sum estimated would be, in round figures, about 2,400,000,000 German marks. This sum does not include the expense of constructing the new lines :

(1) Memel (Klaipeda)-Telsiai-Chavli (Sauliai) ;
(2) Kovno (Kaunas)-Polanga and other lines.

B. Narrow-gauge Lines.

Length of track lines:
951 kilometres of 60 centimetres track;
233 kilometres of 75 centimetres track and
16 kilometres of 1 metre track.
In all: 1,200 kilometres of narrow-gauge lines.

596 kilometres are occupied by Polish troops. The remainder is administered by the Lithuanian Government;
423 kilometres are in operation, and
120 kilometres are not working at present.

The personnel employed, including workmen in repair shops, is about 300.

For the year 1920 the goods traffic was 4,126,424 kilometre-tons.

On December 31st, 1920, the rolling-stock was as follows:—
52 engines, 42 % of them out of action.
671 waggons, 40 % of them out of action.

The operation of these lines requires 60,000 cubic metres of wood or 12,000 tons of coal a year.

Warehouses and workshops are badly equipped and short of machine tools; to put them into normal condition again would require the investment of a capital of 4,500,000 German marks.

The question of competent staff on these lines presents the same difficulties as on the standard-gauge lines, and these have already been stated.

The Lithuanian Government proposes to build about 400 kilometres of new narrow-gauge lines during 1921-1925, and to abolish certain lines which were built during the war for strategical reasons, and are of no economic importance.

II.

WATERWAYS AND PORTS.

A. Waterways.

I. *General Notes.*—According to the statistics for 1914, the total length of navigable rivers is 5,772 kilometres, of which 3,368 kilometres were used only for the transport of timber rafts. 975 kilometres were used for navigation and the raft-transport. The length of the canals was 93 kilometres (the canal of Augustovo).

Owing to the development of the timber-industry, the above figures are at the present time exceeded, since the rivers which were not utilised before the war now serve for raft-transport.

Almost the whole area of Lithuania lies in the Niemen river basin, except the Northern portion of the country, which is watered by the tributaries of the Duna.

According to the Law of December 11th, 1920, all the waterways are State property, and thus all essential steps can be taken to remove obstacles and other dangers to navigation, while all the work necessary for navigation, irrigation and the employment of water-power is facilitated.

The total length of the Niemen as far as it runs through Lithuanian territory (from the River Bérézina to the village of Smoleninkai) is 667 kilometres. In the territory of Lesser Lithuania, called "The Memel territory", and at the present time under the sovereignty of the Allies, the length of the Niemen (from Smoleninkai to its mouth) is 112 kilometres.

II. *Characteristics of the Course of the Niemen.*—According to the character of its course and of its bed, the Niemen can be divided into six sections, as follows :—

1. From its tributary the Bérézina to the village of Mosti : 158 kilometres.
   The river bed and the banks are of a sandy nature.
   Breadth : from 50 to 100 metres.
   Average slope : 0,00014.
   Minimum depth in summer : 0,40 m. to 0,50 m.
   Can be used for the transport of rafts.

2. From Mosti to Druskininkai : 155 kilometres.
   Breadth : from 60 to 200 metres.
   Average slope : 0.00019.
   Minimum depth in Summer : 0.70 m. to 0.90 m.
   The river bed contains clay. In the neighbourhood of Grodno it is calcareous (pebbly).
   Navigable.

3. From Druskininkai to Alytus : 91 kilometres.
   The river bed and banks are rocky.
   Breadth : 70 to 200 metres.
   Average slope : 0.0002.
   Average depth in Summer : 0.70 m.
   This part of the river is very difficult for navigation owing to rapids and accumulations of stones.

4. From Alytus to Kovno (Kaunas) : 158 kilometres.
   The river bed and banks are in part pebbly and in part sandy. The course of the river is very winding.
   Breadth : 70 to 200 metres.
   Average slope : 0.00023.
   Minimum depth : 0.80 m.
   Navigable.

5. From Kovno (Kaunas) to Smoleninkai : 105 kilometres.

In this part the character oi the Niemen undergoes a change owing to its tributary, the Vilija (Néris) which, joins it near Kovno (Kaunas). The river bed it partly sandy and partly of clay.

Breadth : 170 to 350 metres.
Slope : 0.00012.
Minimum depth : 0,90 m.

This part of the river is the most navigable and the easiest to improve.

6. From Smoleninkai to its mouth : 112 kilometres.

There the Niemen constitutes the frontier between Germany and Lesser Lithuania (the territory of Memel). It is the only part where the channel has been regularised. Its breadth is not more than 200 metres.

Minimum depth : 1,20 to 1,50 m.
Very favourable for navigation.

The river is navigable for 240 days in the year. The difference between high and low Vater at Kovno (Kaunas) is about 5 metres.

The most important tributaries are the Néris (Vilija) and the Nevezys.

III. *Canals connecting the Niemen Basin with neighbouring basins.*—The basins connecting with the Niemen are : the basins of the Dnieper, the Vistula, the Pregel, the Vindau and the Duna.

1. The Niemen is connected with the basin of the Dnieper by the Oginski Canal;

2. With the basin of the Vistula by the Augustovo Canal.

3. With the basin of the Pregel by the Friedrichgraben Canal which lies entirely in Germany;

4. While the Koenig Wilhelm Canal connects the Niemen with the town of Memel (Klaipéda).

IV. *The Working of the River Waterways.*—The river waterways are divided among the following districts : Vilna (Vilnius), Grodno (Gardinas), Kovno (Kaunas), and Memel (Klaipéda), each of which has its district characteristics. These districts are closely connected with each other as regards their exploitation.

1. The Vilna District (Vilnius) Basin of the river Néris (Vilija). Before the war the Néris (Vilija), was chiefly used for raft transport and for navigation between Kovno (Kaunas) and Janova (40 kilometres), as well as between Vilna and Nementchina (32 kilometres).

Work had been undertaken with a view to regularising the channel especially by removing the rapids.

The vessels engaged in its navigation were of 20 to 40 h. p. and of 5 to 8 tons. They were used for carrying passengers as well as for agricultural produce and merchandise.

Except for its lower part, this district is at present occupied by the Polish troops, and is separated from the Niemen Basin, Kovno (Kaunas) district, by the military frontier line.

Navigation and raft transport in the district occupied by the Polish troops has entirely ceased.

2. The Grodno (Gardinas) District. The upper reaches of the Niemen from Alytus.

This district was navigated by barges each of 10 to 15 tons burden.

At the present moment this district, which is occupied by the Polish troops, is entirely cut off from Kovno (Kaunas) and Memel (Klaipéda).

The small ports are abandoned, many buildings have been destroyed, and navigation and raft-transport has been suppressed. Although, before the war, this district was the centre of the timber industry, the town of Grodno was, during the winter of 1920-1921, without wood for heating purposes, and the population which lived in this industry was unemployed.

3. The Kovno (Kaunas) District. The Niemen from Alytus to Smoleninkai.

Before the war 19 boats were engaged in carrying passengers and merchandise. Their description was as follows :—

Power : 140 h. p.
Length : 40 metres.
Draught when laden : 0.80 m.
Cargo : up to 40 tons.

The greater number of these boats were used below Kovno (Kausas). All rafts went to Kovno (Kaunas) and thence on towards the Memel district. Of these 19 boats 8 were destroyed during the war and the others were carried off by the Germans as war booty.

After the evacuation of the German troops, the Lithuanian Government made every effort to reorganise navigation in these parts. In 1920, 10 Lithuanian boats were in use for the transport of passengers and merchandise. But as the tonnage of these boats was insufficient to cope with the passenger and goods traffic, they were re-inforced by boats from the Memel district.

The goods carried consisted of : wood, peat, grain, bricks, fodder, fruit, fish, oils, iron, manufactured articles, etc.

4. The District of Memel (Klaipéda), from Smolininkai to the mouth of the Niemen, before the war belonged to Germany. Since the Treaty of Versailles, this district (Lesser Lithuania or the territory of Memel) has been separated from Germany and temporarily placed under the sovereignty of the Allies.

This river waterway has not in any way suffered from the war ; its equipment and plant have remained unimpaired.

The tonnage of boats in use and carrying full cargo is at the present moment 14,000 tons : — in summer it is 5,000 tons. All these boats can go up from Memel to Kovno.

V. *Estimates.*—The Lithuanian river waterways are not yet in a condition to meet the requirements of navigation.

The development of river transport involves a whole series of improvements and will make it necessary to acquire new equipment at the earliest possible date. The following work and material is required :

Two dredgers (each 200 m^3 to the hour) on the Niemen between Kovno and Smolininkai.

Two dredgers between Grodno and Kovno (each 100 m^3 to the hour).

One dredger (50^3 to the hour) on the Néris.

Three excavating machines (each 75 m^3 to the hour), between Kovno and Grodno in the pebbly part of the river-bed.

Ten floating cranes, each of 10 tons, and some small floating cranes.

2 service boats each of 150 h. p.

2 service boats, each of 60 h. p.

2 service boats, each of 60 h. p.

8 motor barges of 20 to 50 h. p.

The fitting up of the repair shops at Kovno, Vilna and Grodno.

The construction of new ports on the Niemen and on the Néris.

Boats and barges for passenger and goods traffic.

B. Ports.

All river transport converges on the port of Memel (Klaipéda), the natural port of Lithuania, which gives her access to the Baltic through the Kurisches-Haff. This port is sufficiently equipped for the present trade. Its length is 10 kilometres. Breadth : 300 to 400 metres. Minimum depth 6 metres. It rarely freezes.

In 1911 traffic was as follows :—

Entered the Port : 880 steamers with 309,000 tons of goods.

Left the Port : 878 steamers with almost equal tonnage of exported goods.

The principal export products of Lithuania which are sent to Memel (Klaipéda) are · corn, linseed, flax, and, above all, wood (75% of the total exports).

The separation of the Memel territory from Germany and its restoration to Lithuania, its mother-land, will contribute to the great development of this port, more especially when the railways from Sauliai to Memel and from Kovno to Memel have been constructed. The port of Memel will become the centre of Lithuania's foreign trade.

The productive powers of Lithuania are at the present moment diminished by the Customs barrier which separates Memel (under the temporary administration of the Allies) from its mother-land, thus depriving the latter of her natural maritime outlet towards Western Europe. This forces Lithuania at the present time to use the foreign ports of Libau and Koenigsberg for her imports and exports.

In 1920 a Lithuanian-American Company was formed, which acquired 6 steamers of 400 tons each, intended for trade between Lithuania and the European States. This company will employ two ships in a trans-Atlantic goods and passenger service between the United States and Lithuania. The head office of this society is at Memel.

SUMMARY.

The Lithuanian Government has made great efforts, under numerous difficulties, to reorganise the railways and waterways; the state of traffic is rapidly improving, although the Government has received no outside assistance.

The chief difficulties are as follows:—

1. The aggression of Poland, whose regular or rebel troops occupy part of Lithuanian territory. The Lithuanian Government, wishing to settle this question peacably, has submitted the matter to the League of Nations.

2. The artificial barrier (the customs frontier) which separates Lithuania from the territory of Memel, which, in accordance with the Treaty of Versailles, is under the temporary administration of the Allies.

3. The question of coal.

4. Lack of funds necessary to complete rolling-stock, and especially for purchasing goods trucks, fitting out repair shops, rebuilding stations and bridges destroyed during the war, acquiring dredgers, cranes and boats urgently needed for the improvement of the river waterways, etc.

LUXEMBURG.

Geographical Situation of Luxemburg.—Luxemburg is situated between France, Belgium and the Rhine Province. The chief tributary of the Rhine, the Moselle (which is not canalized), forms its eastern frontier. Luxemburg is by its very nature a transit-country, forming by reason of its situation, the natural link between Eastern France, Belgium, and the regions of the Moselle and Saar, as well as between Belgium and Alsace-Lorraine.

German coal, destined for Eastern France and Alsace-Lorraine, is sent across Luxemburg, and the same is the case in regard to French minerals destined for the Rhine countries. It is through Luxemburg that Alsace and Lorraine and their important industries have communication with Antwerp.

Finally, the great international route England-Belgium-Switzerland-Italy, through Bâle, crosses its territory.

Economic Situation.—Luxemburg is not, however, solely a transit country ; it is essentially an exporting country, owing to its important iron industry, which, at the time when the country still belonged to the German Customs Union, was responsible for one-seventh of Germany's total iron production. As the markets of the latter country will be closed or almost closed to it in the future, Luxemburg's industry, which depends on foreign countries for its fuel, must henceforward concentrate its activities on exporting to the great world markets ; and to compete in this field Luxemburg must have an outlet to the sea. Luxemburg lacks navigable waterways, but it has an excellent railway system planned.

The railways are divided into two systems of approximately the same length : the Guillaume-Luxemburg system, operated at present by the " Administration française des chemins de fer d'Alsace et de Lorraine " at Strasburg, and the Prince-Henri system, administered by the company of the same name at Luxemburg.

The position of these two systems is as follows :—

A. Guillaume-Luxemburg-Railway.

Plant.—The road-bed and the permanent way are in good condition. In two places temporary engineering works on the new Luxemburg-Oetrange line have still to be carried out.

Although after the war the number of damaged trucks was considerable, the amount of running repairs is now almost normal.

Traffic.—*(a)* train-kilometres :

1913 : 5,595,354 ; 1920 : 4,178,236.

(b) Passengers :

1913 : 8,146,275 ; 1920 : 5,571,251.

(c) Tonnage of goods traffic :

1913 : 8,135,473 ; 1920 : 4,255,950.

Rates.—In 1914 the passenger rates were as follows :

1st class	8 fr. 75	per	100	kilom.
2nd class	5 fr. 625	»	100	»
3rd class	3 fr. 75	»	100	»
4th class	2 fr. 5	»	100	»

and from March 24th, 1920 :

1st class	15 fr. 825	per	100	kilom.
2nd class	9 fr. 906	»	100	»
3rd class	6 fr. 38	»	100	»
4th class	4 fr. 25	»	100	»

These increases were not applied to season tickets or to the special tickets issued to workmen and school-children.

The pre-war rates for goods-traffic have been twice raised :

(1) from April 1, 1918, by 15 %.
(2) from March 24, 1920, by 125 %.

These increases applied to all transport by fast and slow trains (dogs, coffins, livestock, goods, etc.) but not to the transport rates for luggage.

Fuel.—The consumption of coal (Saar) amounts to 400 tons a day, or 146,000 tons a year ; as the price of one ton of coal is 100 fr., the annual expenditure is 14,600,000 fr.

Before the war, Saar coal cost 20 fr. a ton.

General Financial Situation.—The general financial situation is not favourable, owing to the small amount of traffic.

B. Prince-Henri Railway.

Plant.—Except that structural repairs have been somewhat delayed, the state of the lines, bridges and viaducts on this system is satisfactory. There is no rebuilding to be done, and no construction of new lines is contemplated.

Repairs to plant and, above all, to traction plant have been more seriously interfered with by the lack of war materials resulting from the war.

Traffic.—The circulation of the trains on this system was reckoned before the war at 2,011,012 train-kilometres. In 1919, the last period for which statistics are available, the figure had risen to 1,192,838.

In 1913, 9,206,814 tons of goods were carried ; and in 1919, 2,855,995 tons. The number of passengers carried was 2,620,420 in 1913 and 5,091,820 in 1919.

Rates.—Goods rates have been increased several times, and on February 1st, 1921, they reached a figure 300 % higher than previous rates ; special rates have, for the most part, been subject to the same increase as general rates.

Passenger rates show an increase of about 160 % as compared with pre-war rates ; reductions on return tickets have, however, been abolished. The price of workmen's season tickets has remained almost unaltered.

Fuel.—In 1913, the total consumption of coal was 38,593 tons, and of briquettes, 5,702 tons. In 1919, the consumption was reduced to 30,768 tons of coal and 1,115 tons of briquettes.

This fuel is at present supplied from Belgium, from the Ruhr and from the Saar Basin.

In 1913, the average cost of coal was 24.69 fr. a ton ; of briquettes, 27.65 fr. ; in 1919 the price of coal rose to 70.18 fr. a ton, and of briquettes to 86.25 fr. In 1920 the price of coal reached 194.07 fr. per ton.

General Financial Situation.—The railways are being run at a loss, owing, on the one hand, to the high cost of labour, fuel, and all necessary materials, and, on the other hand, to the small amount of transport.

THE NETHERLANDS.

I.

RAILWAYS.

1. Historical Review.

The first effort towards the construction of railways in the Netherlands dates from about 1830, and had, as far as the Northern Netherlands were concerned, relation to a project for a line from Amsterdam to the German frontier via Amersfoort-Isselburg. This plan failed for lack of capital. It was feared that our soft soil would be too great a drawback for the construction of the road and that the dense net of competing waterways would render economic exploitation of railways in our country impossible. A proposal brought forward by the Government to construct a railway line from Amsterdam to the border via Arnhem, with a side branch to Rotterdam, was rejected by the Chambers.

However, some enterprising men from Amsterdam applied for a concession to construct a railway between Amsterdam and Rotterdam. The Government granted this concession, with the result that on September 20th, 1839, the first part from Amsterdam to Haarlem was opened. This line was worked by the "Hollandsche IJzeren Spoorweg Maatschappij", briefly called H. S. M. On August 25th, 1839, the whole line was ready.

In the meantime, thanks to the initiative of the King, the question of the Rhine railway was brought forward again. By Royal Decree of April 30th, 1838, it was resolved that a railway from Amsterdam to Arnhem via Utrecht should be constructed. The payment of the interest on the loan issued for that purpose was guaranteed by the King from his personal funds. When the loan — provisionally 9 million guilders — had been redeemed, the ownership of the railway was to be transferred to the Government. The loan was placed, and as early as December 18th, 1843, the first part of the Rhine railway, the line Amsterdam-Utrecht was opened. On May 20th, 1845, the railway, which in the beginning was worked at great loss, was transferred to a combine of British capitalists, by whom the

"Nederlandsche Rhijnspoorwegmaatschappij", briefly called N.R.S., was founded.

Till 1860 the "Hollandsche IJzeren Spoorweg Maatschappij" were able to carry out their operations (each with a territory of their own in the centre of the country) without being menaced by competition. The other railways which were built in this period, viz, the lines Moerdijk-Roosendaal-Belgian frontier, Roosendaal-Breda (Antwerp-Rotterdam Railway Company) and Maastricht-Belgian boundary, direction Hasselt (Aix-la-Chapelle-Maastricht Railway Co.), could, on account of their isolation, do no harm to the domination of the two great companies.

The position was altered in 1860, when the States-General passed a bill by which the construction of lines for the account of the State was decided upon. This step, which had been preceded by various useless attempts to arrive at railway construction by means of concessions, completely changed the aspect of the Netherlands railway map. There had not been a net so far; the construction had taken place by pieces, without regard to the requirements of the several parts of the country. The only decisive consideration had been where profit could immediately be made and not what region of the country could be better developed. In contradistinction, the act of 1863 held out a prospect for the construction of a connected complex of railways, so that the provinces could communicate with each other and with the centre of the country, and all parts of the Realm could equally profit by the advantages of a better connection.

By virtue of that act the following lines were built: Arnhem-Meppel-Groningen, Meppel-Leeuwarden, Harlingen-Nieuweschans, Zutphen-Enschedé-frontier, Maastricht-Venlo, Breda-Venlo-frontier, Rotterdam-Breda, Amsterdam-Helder, Utrecht-Den Bosch. By the acts of May 21st, 1873, and November 10th, 1875, the lines Arnhem-Nijmegen, Zwaluwe-Zevenbergen, Zwaluve-Den Bosch, Zwolle-Almelo, Dordrecht-Elst, Amersfoort-Kesteren, Zaandam-Enkhuizen, Stavoren-Leeuwarden, Nijmegen-Venlo, Rotterdam, Hook of Holland were added. These State lines, with the exception of the railways Zaandam-Helder, Rotterdam-Hook of Holland and Amersfoort-Kesteren, which were allotted to the H.S.M., and the line Venlo-frontier, which was worked by the Bergisch-Maerkische Railway Company, were operated by the "Company for the Exploitation of State Railways", founded in 1863 and briefly called S.S.

On October 5th, 1863, this company opened its first line, the section Breda-Tilburg, to public traffic, whereupon in the North the line Harlingen-Leeuwarden followed in the same year.

As the net of the S.S. expanded, its power increased in proportion and competition began among the three great railway companies. As the energy developed by the companies did not in the first place tend to promote traffic, but rather was applied to injure each other's interests, such a decline of the financial standing of the three concerns ensued that the Government deemed it necessary to take the matter in hand. Several solutions were suggested. The commission of enquiry instituted in 1881, which had to report about the question how the requirements of the public might best be met, had advised to modify the conditions of exploitation

while retaining the three companies; from other sides partly State exploitation was advocated and partly a system of operation not by three undertakings but by one.

None of these solutions was chosen by the Government. Its purpose—a division of the net among two or more concerns which would be a match for each other and could compete under equal circumstances—was only to be reached by creating a state of equilibrium between two companies; neither the lines of the S.S. nor those of the H.S.M. could be made profitable unless the central complex could be disposed of: the Rhine railway. When this appeared to be for sale, the Government were able to carry out their scheme and the railway agreements of 1890 were laid down.

The position could now be resumed as follows:

2. Division of the trunk lines between S.S. and H.S.M., while the Rhine Railway Company was wound up.

2. Exploitation of these lines by S.S. and H.S.M. on the same conditions, when possible, on the basis of competition and of concentration with joint operation of lines, stations, warehouses, etc.

The Rhine railway net was given to S.S. for exploitation, while H.S.M. got the lines Stavoren-Leeuwarden, Dordrecht-Elst and Vork-Ressen Bemmel, so far worked by S.S., and was charged with the exploitation of the line Amersfoort-Kesteren and the railway Schiedam-Hook of Holland. On a large scale the principle was now applied that one line should be used by two companies. Amsterdam, Rotterdam and a great many other towns in the West were thus given in each direction at least two direct communications with Germany and Belgium. For inland traffic at the more important centres of the country, people could generally choose between the S.S. and the H.S.M. route.

The danger that the companies would try to divert the business to their own lines along a round-about way, was in this way averted. Competition could now be pushed in the right direction and would not necessarily lead to exhaustion of the companies to the detriment of trade.

While it was intended by means of this concentration and competitive system to obviate the inequality which had existed between S.S. and H.S.M., it was necessary to place them on an equal footing financially also.

The regulation adopted in 1890 and still holding good, is chiefly as follows:

The State continues to be the owner of the State railways, but allows them to be used by S.S. and H.S.M. at a fixed annual rent, equal to the amount of the dividends received by the State in 1888 for the use of the State railways, in the form of 20 per cent. of the gross receipts of the S.S. and rent of the H.S.M. ,which amount was increased by the interest on the capital raised by the State to purchase the N.R.S. lines. (For S.S. the rent was fixed at / 3,400,000.—, for H.S.M. at / 550,000.—, which amount was diminished by / 65,000.— after the transfer of the Enkhuizen-Stavoren ferry.)

For the use of the new State lines, which will be given to the companies for exploitation, the latter pay the State an amount of 1,000 guilders per kilometre, or so much more as shall be agreed between the Minister of Public Works and the company concerned. The companies are obliged to keep the lines and all that belongs to them in good repair and to cede them to the State in a satisfactory condition in case of appropriation, cancellation, etc.

If the company deems it necessary to alter, improve or extend existing works or to build new works, the consent of the Minister is required. If the consent is granted, these works are constructed by the company for its own account and are deemed to form part of the State railways.

If the Minister does not grant the consent, or in case he deems works necessary while the company does not share this opinion, the question whether the works are necessary for carrying on the service according to the plans and estimates submitted, shall be referred to the award of arbitrators.

The cost of procuring rolling-stock is for account of the company.

Of the annual profit the companies retain an amount equal to 4 per cent. of their capital (for S.S. limited to 18,000,000, for H.S.M. to 22,500,000 guilders). Of the profit realised above these amounts, the State receives half till the whole share of the company amounts to 6 ½ per cent. of its capital; of the rest four-fifths are paid to the State and pre-fifth to the company.

If the profit of S.S. amounts to not more than 3 ½ per cent. of its capital for two consecutive years, it has a right to terminate the contract. H.S.M. has the same right when the sum of profits, depreciations and reserved profit amounts to less than 6 per cent. of its share capital.

At any time the companies' rights and titles can be expropriated at a year's notice or less. Moreover, by a judgment of the proper court, the right to exploitation can be withdrawn from the companies if they fail in keeping up the State railways, or if they do not live up to the stipulations of the agreement as regards exploitation, material and service.

Though extensions of the State railway net after 1890 took place sporadically (the most important extension was the construction of the railway Weert-Eindhoven under the act of January 2nd, 1905) new lines could repeatedly be added thanks to private initiative, part of which lines were worked by S.S. and part by H.S.M. Various companies for the construction of light railways were formed so that the trunk railways could be fed and out-of-the-way parts of the country could be freed from their isolation.

The system of State exploitation or nationalisation of the railways, though repeatedly discussed and propagated in the press and in pamphlets, has not been able to obtain a majority in Parliament so far. In 1918 a bill to this purport was rejected in the Second Chamber by 46 against 39 votes.

The Commission, *ad hoc*, recommended a single administration. In 1916 this system was practically, though not formally, adopted by amalgamation of S.S. and H.S.M. with the consent of the Government. This amalgamation also included the only two large private companies still

leading an independent existence, the N.C.S. (Nederlandsche Centraal Spoorweg Mij.) and N.B.D.S. (Noord Brabant Duitches Spoorweg Mij) so that now all trunk (and local) railways in the Netherlands — with the exception of those in Zeeuwsch Vlaanderen — are in the hands of the S.S. and H.S.M., combined under the name of "Nederlandsche Spoorwegen". In consequence of the arrangement made, the two companies continue to lead a separate life as to their agreements with third parties. Towards the Government their position is the same, while the boards of directors and the management are united in the same persons. There is a community of assets and liabilities, not of capital ; the profit is equally divided in proportion to the capitals of the companies.

It is to be anticipated that this community of interests will contribute to a more efficient and economical management.

2. Legislation.

In the beginning the railways were considered to be like other public roads and it was not deemed necessary to make special legal provisions. Concessions were granted by the Crown by virtue of the Superintendance of the roads conferred on the King by the Constitution, while as regards the service the regulations laid down by Royal Decree of 1829 for public means of transport in this country, held good.

These regulations, however, were practically useless for railway service ; the great speed of the new means of conveyance was a source of danger which rendered it imperative on the part of authority to make high demands on road, material and staff and to call into existence special penal sanctions.

Besides, the dangers attendant upon a monopoly had to be safeguarded against, for this is what the railway working in practice comes to. A sharp control on the part of Government was consequently necessary to see that the road and plant came up to certain technical requirements; on the other side the responsibility of railway companies with regard to the time table, the rates, the through transport, the military and mail-transport had to be fixed.

The first Railway Act of August 21st, 1859, contained the general rules which the Government thought fit to lay down ; following the French legislation, it started from the principle that the law could not provide for all details and that the care thereof should be left to the Executive ; this has the advantage that the development of traffic is not impeded by the long formalities attendant upon the enactment of a law.

The act of 1859 has later been replaced by the act of April 9th, 1875, still holding good but for various alterations.

Under this act a number of Royal Decrees were issued.

The most important regulations proclaimed by Royal Decree are the " Algemeen reglement voor den dienst " (general service regulations) and the " Algemeen reglement voor het vervoer " (general rules for transport) ; the former gives instructions to be observed by drivers, officials

and clerks, while the latter regulates the relations with the public and contains conditions concerning the goods and passenger traffic.

By Royal Decree of May 11th, 1911, rules were given concerning the general supervision of the railway services by a Board of Control (7 members and a secretary), which has to see to the fulfilment of laws, general measures, rates, conditions of concession, and the railway service itself, while, moreover, it acts as a Board of Advice to the Government. Under the Board of Control there are a number of officials charged with the daily supervision.

The Government has left the building of tramways entirely to private initiative. When there is an urgent need for them and Province or Municipality declare themselves willing to co-operate financially, the Government grants a subsidy. As a rule this subsidy consists of an advance, without interest, of a third of the total expenses ; in exceptional cases this advance is higher. Definitive conditions are connected with the advance and laid down in a so-called concession and subsidy agreement.

Up to 1917 the State had granted advances to an amount of 21,812,408 guilders.

The railways on which the traffic takes place exclusively at a limited speed come under the Local Railway and Tramway act of July 9th, 1900, modified by the act of December 15th, 1917. By virtue of that act the " Algemeen Reglement Dienst Locaalspoorwegen " (general regulations service local railways) and the " Algemeen Reglement Fervoer Locaalspoorwegen " (regulations transport local railways) are applicable to the local railways.

For the tramways the so-called " Tramweg reglement " has been issued by Royal Decree of February, 24th, 1920.

3. Statistical Data.

The cost of railway construction varied between 59,421 guilders per kilometre (Groningen-Meppel) to 661,816 guilders per km. (Rotterdam-Breda).

The capital laid out by the State yielded only a low interest ; at the end of 1890, when the railway agreements came into operation, the capital amounted to about 300 million guilders, which yielded in the next 10 years an average interest of only 4,188,528 guilders.

The dividends of the railway companies have always been comparatively low, during the last few years even very low. From 1900 till the amalgamation, the average dividend of the S.S. was 4,28 per cent., of the H.S.M. 3,83 per cent. The dividend of the joint companies was 3 per cent. in 1917, 1918 and 1919.

Per day-kilometre the proceeds were :

Passengers and luggage	1918 . . .	47.38	guilders
» »	1919 . . .	55.32	»
Goods and cattle	1918 . . .	46.56	»
» »	1919 . . .	58.98	»

Summary of Railway Returns.

(Supplied by the Ministry of Public Works.)

a) The lines, buildings and works are in good condition.

On account of the war it has been impossible to continue strengthening the road beds, but the administration is quickly catching up in this respect.

As to the construction of new lines, the preliminary work which had been postponed has now been taken firmly in hand.

The rolling stock consisted of the following :

	1913	1920
Engines	1,326	1,460
Rollling stock for passenger trains	4,508	4,992
Rolling stock for goods trains	25,543	32,090

The condition of the stock is the same as before the war.

b) Kilometres travelled by :

	1913	1920
Goods trains	17,304,000	14,838,000
Passenger trains	34,104,000	22,218,000

Merchandise carried :

1913	1919
19,811,869 tons	13,616,577 tons

The figures for 1920 have not yet been compiled.

c) Fares for passengers, luggage and merchandise are about 100 % higher than before the war, and several special tariffs have been temporarily or definitively abolished.

d) Total amount of fuel consumed in

1913	1920
741,000 tons	886,600 tons

Fuel prices have fluctuated considerably. Just now they are 3 ½ times as high as in 1913.

e) In 1913 a dividend of 5 % was paid.

For 1920 the receipts exactly cover the expenses.

Comparative Results

Year	Passenger traffic						Goods traffic	
	Number of persons conveyed					Passengers Km. covered	Goods carried (tons)	Train-Km.
	I class	II class	III class	At reduced fares	Total			
	In thousands						In thousands	
1912	3.393	20.044	56.990	1.373	81.800	2.146.883	19.076	1.695.406
1913	3.692	22.477	60.853	1.544	88.561	2.340.003	19.578	1.748.643
1914	2.534	17.915	45.315	2.370	68.143	1.730.935	17.084	1.601.369
1915	2.576	18.806	54.915	16.447	92.444	2.409.099	15.667	1.678.185
1916	3.230	23.212	66.899	18.822	112.163	2.788.577	16.276	1.706.645
1917	3.164	23.375	86.482	10.695	123.716	[1]	13.566[2]	[1]
1918	3.324	24.030	88.977	9.474	125.805	[1]	13.147[2]	[1]
1919	3.697	24.670	93.816	4.471	126.654	[1]	13.876[2]	[1]

[1] Not available.

[2] In connection with the amalgamation, figures from **1917** have been recorded as relating to one company only ; in **1916** and preceding years, they were calculated separately for each company ; this accounts for the lower figures for **1917** and the following years.

of Railway Traffic.

Receipts in guilders								Expenditure in guilders	Working cofficient
Passenger traffic					Goods traffic		Total receipts		
I class	II class	III class	Total including passengers conveyed at reduced fare	Per passenger per Km.	Total	Per ton per Km.			
In thousands					In thousands		In thousands		
3.509	11.450	17.886	33.637	0.016	35.589	0.021	76.000	52.773	69,44
3.760	12.451	19.346	36.477	0.016	36.855	0.021	80.447	56.377	70,08
2.645	9.032	15.273	31.893	0.018	33.912	0.021	73.314	50.875	69,39
2.506	9.011	16.746	40.673	0.017	37.012	0.022	84.934	54.917	64,66
3.092	11.107	19.605	49.255	0.018	41.778	0.024	96.244	65.313	67,86
4.789	15.223	24.065	52.806	—	46.012	—	102.726	78.078	76,01
6.420	18.036	28.447	60.680	—	61.829	—	127.065	104.808	82,48
9.006	24.976	34.358	71.473	—	78.473	—	156.425	144.366	92,29

LENGTH IN METRES, ON DECEMBER 31st OF EACH YEAR MENTIONED BELOW, OF THE RAILWAYS WORKED BY THE COMPANIES MENTIONED HEREAFTER, BUT NOT BELONGING TO THEM, AND JOINTLY USED.

(Taken from returns issued by the Department of Public Works.)

Name of Company	1839	1845	1850	1855	1860	1865	1870	1875	1880	1885	1890	1900
Maatschappij tot Exploitatie van Staatsspoorwegen . .	—	—	—	—	—	272.959	791.952	848.769	932.617	1·287.549	1.431.621	1.558.361
Hollandsche IJzeren Spoorweg Maatschappij . . .	16.867	61 066	84.408	84.408	84.408	126.331	173.309	236.399	351.735	539.002	882.836	989.569
Nederlandsche Rhijn-Spoorweg Maatschappij . . .	—	92.000	82.000	143.877	163.467	163.467	196.467	196.476	228.433	228.433		
Nederlandsche Centraal-Spoorweg Maatschappij .	—	—	—	—	—	96.140	101.085	101.085	101.085	101.085	101.085	111.652
Noord-Brabantsch-Duitsche Spoorweg Maatschappij .	—	—	—	—	—	—	—	52.421	52.421	52 421	52.421	52.421
Spoorwegonderneming . . . Grand Central Belge . . .	—	-	—	83.009	87.061	87.061	109.591	109.591	102.758	102.758	102.758	
Luik Maaestritsche Spoorweg Maastchappij . . .	—	—	—	—	—	11.022	11.022	11 022	11.022	11.022	11.022	
Spoorwegonderneming . . . Mechelen Terneuzen . . .	—	—	—	—	—	—	—	23.350	23.350	23.350	23.350	23.586
Spoorwegonderneming Ghent-Terneuzen	—	—	—	—	—	—	10.200	18.200	18.200	10.200	10.200	10.200
Pruisische Spoorweg-directie Cologne [1]	—	—	—	—	—	—	2.966	2.966	2.966	2.966	2.966	2 966
Pruisische Spoorweg-driectie Cologne [2]	—	—		—	—	18.965	21.983	21.983	22 738	22.738	8.116	8.116
Oldenburgsche Spoorweg. .	—	—	—	—	—	—	—	—	857	875	875	875
Pruisische Spoorweg-directie Münster [3]	—	—	—	—	—	—	—	5.371	5.371	5·371	5 371	
Pruisische Spoorweg-directie Essen.	—	—	—	—	—	—	—	—	—	—	—	19.028
Haarlem-Zandvoort Spoorweg Maatschappij. . . .	—	—	—	—	—	—	—	—	—	8.575	—	
Bentheimer Kreisbahn. . .	—	—	—	—	—	—		—	—	—	—	—
Total.	16.867	153.066	176.408	311.294	334.936	775 945	1.418.534	1.619.633	1.845.571	2.396.945	2.632 621	2.775.774

	1910	1911	1912	1913	1914	1915	1916	1917	1918
Maatschappij tot Exploitatie van Staatssporwegen . .	1.792.173	1.792.793	1.782.173	1 821.173	1.847.465	1.847.465	1.847.465	1.947.465	1.847.495
Hollandsche IJzeren Spoorweg Maatschappij. . . .	1.154.056	1.154.056	1.200.137	1.220.221	1.227.401	1.228.135	1.288.135	1.288.135	1.291.645
Nederlandsche Rhijn-Spoorweg Maatschappij. . . .	(From Oct. 15th, 1898, worked by the "Maatschappij tot Exploitatie van Staatsspoorwegen".)								
Nederlandsche Centraal-Spoorweg Maatschappij .	147.944	147.944	147.944	147.944	147.944	147.944	147.944	147.944	147.944
Noord-Brabantsch-Duitsche Spoorweg Maatschappij .	52 421	52.584	52.584	52.584	52 584	52.719	52.719	52.719	52.719
Spoorwegonderneming Grand Central Belge. . .	(From July 1st, 1898, worked by the "Maatschappij tot Exploitatie van Staatsspoorwegen".)								
Luik Maastrichtsche Spoorweg Maatschappij. . . .	(From Jan. 1st, 1899, ,, ,, ,, ,, ,, ,, ,, ,,								
Spoorwegonderneming Mechelen-Terneuzen. . .	23.586	23.586	23.586	23.586	23.586	23.586	23.586	23.586	25.586
Spoorwegonderneming Ghent-Terneuzen	11.701	11.701	11.701	11.701	11.701	11.701	11.701	11.701	11.701
Pruisische Spoorweg-directie Cologne [1]	2.966	2.266	2.966	2.966	2.966	2.966	2.966	2.966	2.966
Pruisische Spoorweg-directie Cologne [2]	13.487	13.487	8.389	8.389	8 389	8.389	8.389	8.389	8 389
Oldenburgsche Spoorweg. .	875	875	875	875	875	875	875	875	875
Pruisische Spoorweg-directie Münster [3]	(On April 1st, 1900, passed to the "Kon. Spoorweg-directie Essen".)								
Pruisische Spoorweg-directie Essen.	13.657	13.657	13.657	13.657	13 657	13.657	13.657	13.657	13 657
Haarlem-Zandvoort Spoorweg Maatschappij . . .	(Further included in the length of the "Hollandsche Ijzeren Spoorweg-Maatschappij".)								
Bentheimer Kreisbahn. . .	2.487	2.487	2.487	2.487	2.487	2.487	2.487	2.487	2.487
Total.	3.215.353	3 215.516	3.256.499	3.305.583	3.339.055	3 339.924	3.399.924	3.392.924	3.403.434

[1] Before 1882 the name was : "Belgisch Maerkische Spoorweg" and before April 1st, 1895 : Kon. "Spoorweg-directie Keulen".
[2] Before April 1st, 1895 : "Kon. Spoorweg-directie Keulen" (Left Rhenisch).
[3] Before April 1st, 1895 : "Kon. Spoorweg-directie Keulen" (Right Rhenisch).

II.

WATERWAYS.

The main factors which have caused Hol and to become a prominent shipping country are its geographical position in the centre of North-Western Europe, and its wide estuaries, extending far into the hinterland and giving access to well-protected ports.

An increasing interest in shipping facilities manifests itself everywhere. The construction of new waterways and the improvement of the existing ones proves that our country is not lagging behind in this respect. Here, as well as in other fields of human activity, the technical progress of recent times is being keenly felt. On the one hand we see many a new method applied to the improvement of the waterways themselves ; on the other hand, there is a great change in the types of vessels that are used. Large steamers, powerful tugs, and fast motor-boats have come into prominence, as well as lighters of simple construction and considerable carrying capacity.

The conditions for a sound development of the shipping movement are the following : wide and deep waterways between the ports and the sea, modern port equipment, and good inland connections.

Amsterdam is reached by the North Sea Canal, which was opened to traffic in 1867 and completed in 1882, when it was placed under Government administration. Important improvements have since been effected. At Ymuiden, where the canal opens into the sea, a new large lock was constructed between the years 1887 and 1896. It has a length of 225 metres a width of 25 M. and a depth on the sill of 10 M. below the average water level. At the same time the outer port and the channel were deepened to 10 ½ and 9 ½ metres (respectively) below average sea level. The channel was widened so as to have a width of 50 metres at the bottom. One of the three revolving bridges spanning the canal was removed and the two others were given a passage 55 metres wide. Amsterdam is now easily accessible for ships measuring 200 × 24 × 9,20 metres. The locks are 2,400 metres away from the mouth of the harbour, and the distance from the locks to Amsterdam is 23,000 metres.

In 1913 (the last year before the war) 4,935 vessels, measuring together 9,337,874 gross register tons, passed through the Ymuiden lock.

Operations were recently started for the building of a new lock at Ymuiden, which is to measure 400 × 50 × 15 metres. This lock will be 1 ½ times as wide as the locks of the Panama Canal, and will exceed the latter in depth by 3.30 metres. Their construction necessitates the widening of the North Sea Canal to 100 metres (at the bottom) and its deepening to 15 ½ metres, as well as an enlargement of the outer port. Amsterdam will then have the widest and deepest ship canal in the world and will be accessible to ships of 100,000 tons.

Rotterdam is reached from the sea by the Nieuwe Waterweg (Rotterdam Waterway) which is an open river communicating with the sea through an artificial mouth at the Hook of Holland.

In 1863 it was decided that the Hook of Holland should be pierced for the construction of a canal without locks and that the existing river (the Nieuwe Maas) should be improved and canalized.

The necessary depth of 6 ½ metres at low tide in the canal and of 7 ½ metres at the entrance, was reached in 1863. The length of the " Waterweg " from Rotterdam to the North Sea is approximately 30,000 metres. The cutting of the Hook proved a complete succes, but the increase in the size of ships soon necessitated a considerable widening of the canal in order to render a deepening of the channel possible. This was effected by the construction of dams and by means of dredging. In 1909 a channel had been obtained of 8 ½ metres below low tide (10 metres below high tide) and in 1915 the works for the maintenance of this depth in a channel 100 M. wide had been completed. Including fishing boats, 22,645 vessels entered and left Hook of Holland in 1913 (with a gross capacity of 77,953,695 cubic metres, out of which 6,439 drew more than 5 ½ M. and 25 had a draft of more than 9 M.

The increasing size of ocean-going vessels led to further improvements of the "Waterweg" not only as far as deepening of the channel was concerned but also in respect to the widening and rectification of the bends. After some time the "Waterweg" will be navigable for vessels drawing 12.20 M. for which a depth of 12.50 M. at high tide is required ; and Rotterdam may be sure that in future its harbours will be able to accommodate vessels of the largest dimensions.

Next to these two world harbours, Holland possesses a number of smaller ports of local significance, as Delfzijl and Harlingen in the North, which are of much importance for the provinces of Groningen and Friesland. The harbour of Delfzijl, which at present is being improved, is accessible for ships drawing about 9 M., that of Harlingen for vessels with some 5 M. draught.

The port of Zaandam, important for the timber trade, is situated on the North Sea Canal and is adapted for the accommodation of the largest timber vessels in use.

Dordrecht can now be reached in normal circumstances by vessels of 6½ M. draught, along the Goereesche Gat, Haringvliet, Hollandsch Diep and Dordtsche Kil. The intention is, however, to connect Dordrecht with the sea along the "Rotterdam Waterway", Noordgeul and Oude Maas ; a depth of 7½ M. in a fairway 100 M. wide, and a depth of 8½ M. in a channel of 50 metres width will be provided there at high tide, so that Dordrecht will be rendered accessible for vessels of more than 8 M. draught.

Finally, in Zeeland we find the port of Flushing, deriving its importance from the passenger service Flushing-Queenborough, and also the harbour of Terneuzen, giving access to the Ghent-Terneuzen Canal. The largest of the locks at Terneuzen has a length of 140 M., a width of 18 M. and a depth on the sill of 8.35 M. below the level of the Canal.

We shall now proceed to give some details about the inland waterways and draw attention to the fact that for centuries past our large rivers have been the life arteries of our inland shipping and the great feeders of the fairway from the German boundary to Rotterdam along the Lower Rhine, Waal, Merwede, Noord and Nieuwe Maas.

In the middle of the 20th century, the rivers were already improved with a view to greater safety for the dikes. At the same time, however, our shipping profited by these ameliorations. Larger vessels were put in use, which in their turn made higher demands on the navigability of the rivers.

By virtue of the act of October 28th, 1889, an attempt was made to give the Waal River a depth of 2.70 M. (if possible 3 M.) below the average high water level (A.W.).

In 1895 the desired depth had been obtained but was not yet stationary, so that in times of low-water shipping was seriously impeded. As the construction of local works had proved to be without satisfactory result, a new and complete rectification of the Waal took place. The normal bed in summer was given a width of 250 M., beginning from the point where the Rhine divides into Waal and Pannerden Canal, and terminating at Fort St. Andries. From there the width gradually increased to 350 M. down to the lower part of the river, near Woudrichem. Thanks to this improvement a permanent depth of 3 M. (A.W.) has been obtained. The improvement, of the Boven-Merwede (Upper Merwede) brought the same result. The Noord is among the most crowded inland waterways. As the width of this river had become insufficient, it was widened to 200 M., with an additional widening of 20 M. in the sharpest bends ; moreover, the river will be deepened to 3½ M. below normal low-water level.

The Nieuwe Maas (New Meuse) has a depth of 6½ M. and is in all respects fit for the largest inland navigation.

When shortly the widening of the Noord will be completed, the fairway from Rotterdam to Germany will at least have a width of 200 M. and a depth of 3 M. below normal low-water level. In connection herewith we wish to point out that the largest Rhine barge is 123 M. in length and 14.08 M. broad, and has a draught of 2.35 M. and a carrying capacity of 3,581 tons. Barges drawing more than 3 M. have not been built. In 1913 not less than 96,718 vessels passed the Rhine at the German frontier either up- or down-stream ; with a total capacity of 52,354,137 cub. metres.

The Rhine trade to Amsterdam passes through the Merwede Canal, which was constructed in the years 1881-1893. It runs from Gorinchem to opposite Vreeswijk, crosses the Lek and continues to Amsterdam. The canal has a depth of 3 M.; and a width at the bottom of 20 M. the locks offer a passage of at least 12 M. and have a length of 120 M. The largest draught allowed in the canal is 2.80 M.; only with a special permit may this limit be exceeded. The largest ship which has gone through this canal had a capacity of 2,208 tons, and drew 2.94 M. The total Rhine traffic at Vreeswijk in 1913 amounted to 4,238 vessels, measuring 2,610,486 tons.

From the figures mentioned it appears that Amsterdam is no longer accessible for the largest Rhine barges; accordingly, on the part of the

Government, a proposal was made for the improvement of the canal so that it will be navigable for the largest Rhine vessels afloat.

In addition, a plan was mapped out for a Rhine shipping canal through the district known as the Geldersche Vallei.

The Merwede Canal does not only serve for Rhine shipping, but also to a large extent for home shipping, in particular for the Amsterdam-Rotterdam route via Vreeswijk.

Belgian Rhine navigation follows the Rotterdam route to Dordrecht. goes along the South Holland and Zealand Streams, the South Beveland Canal, and the West Scheldt, and then takes the River Scheldt up to Antwerp. The South Beveland Canal is 6½ M. deep, and the locks are 16 M. wide and 119 M. long.

A few more words should be said about the inland waterways which are used for home shipping and as a rule are navigable only for a smaller type of vessel than those discussed above.

Amsterdam is an important centre for this kind of trade. Several canals lead to the waterways in the province of South Holland, and one of them (from Amsterdam to Rotterdam via Gouda) is of marked importance owing to the absence of fixed bridges. North Holland, north of the Yssel is intersected by the Groot Noord Hollandsch Kanaal (North Holland Ship Canal), dug in the first half of last century so that sea-going vessels might reach Amsterdam. It can be used for fairly large vessels of up to 800 tons.

All kinds of river craft start from Amsterdam, and pass through the Oranje locks to the various harbours along the Zuyderzee or to the Yssel and thence through the Zwarte Water to the provinces of Overijsel and Drenthe. Passing through the locks at Lemmer, Stavoren or Harlingen, they reach the provinces of Friesland and Groningen. The largest of the Oranje locks has a length of 96 M.. a passage of 18 M. and a depth of 4 M. below canal level.

When the Zuyderzee is drained, this inland sea will change into a lake, and shipping there will be exposed to fewer dangers and difficulties. It will no doubt be accessible to the largest vessels employed in inland navigation.

The city of Groningen, in the North of the country, is another important centre for inland navigation. Its chief communication with the Western part of the country is along the waterway to Lemmer, now navigable for vessels 31½ M. long, 5.90 M. wide and drawing 1.80 M. Plans have been made to render this canal navigable for vessels 67 M. in length, 8.20 M. in breadth and drawing 2 M. Groningen is connected with the port of Delfzijl by the Eems Canal and with the peat-producing districts, which are gradually growing in importance by the Winschoterdiep and the Stadskanaal.

Another centre is Zwolle, the connecting point between the River Yssel and two shipping routes, one from Drenthe along the Zwarte Water and one from the peat districts along the Dedemsvaart. The Ysel is now being improved to a depth of about 2½ M. below normal low-water level. The Overijsel Canal forms communication with Twenthe, but is entirely insufficient to serve this important industrial district. Therefore the digging

of a new canal has been decided upon. It is to have one branch from the Rhine to Almelo, and one to Enschedé and Oldenzaal as well as side branches to Borne and to the Yssel near Zutphen. The new Twenthe Canals will provisionally be constructed to accommodate vessels of 600 tons. Later on, however, they will be rendered large enough for ships of 2,000 tons.

The Meuse in Limburg being useless for any shipping of importance, the traffic by water takes place through the dammed-up Meuse, the Beersche Maas, and thence along the Meuse or the Zuid-Willemsvaart (South William Canal) which is connected with the Luik-Maastricht Canal, and through which 500-ton vessels can pass.

The system of waterways in these districts is, however, being greatly improved.

In the first place the Wilhelmina Canal is being dug, and is already partly in use. It runs from the Bergsche Maas, near Geertruidenberg, to the Zuid Willemsvaart, and has a side branch to Breda.

Secondly, the Meuse from Maastricht to Grave, where the river does not form any national or provincial boundary, is being canalized and connected with the inland shipping net by the Maas-Waal Canal.

Both the canalized Meuse and the Meuse-Waal Canal will be made navigable for vessels of 2,000 tons. The former will be connected with the Zuid Willems Vaart by the Wessem-Nederweert Canal, and in due course with the Wilhelmina Canal. To facilitate the shipping of Limburg coal, a canal has been projected for vessels of 2,000 tons from Maastricht to Born. Thus the canalized Meuse can be better reached from the Limburg coaling district.

Only the principal waterways have been described above; in our watery country there must needs be many more navigable canals, of a certain significance for local interests. Those who would like to obtain some more details about this subject can find them in the "Overzicht der Scheepvaartwegen in Nederland" (Review of the Waterways in the Netherlands) published by the Ministry for Public Works (Waterstaat).

Improvement of the North Sea Canal.

In 1907 a thorough improvement of the North Sea Canal was completed.

A lock had been built at Ymuiden measuring 225 × 25 × 9.20 M. The depth here referred to was the depth at low water, which is 0.95 M. below Amsterdam water mark (A.W.M.).

In the canal the width of the bottom had been increased to 50 M., the depth to 10.30 M. below A.W.M. (depth of channel 9.80 M. at canal level), and the railroad-bridges had been replaced by more spacious ones.

In connection with the opening of the Panama Canal and with a number of works undertaken in ports which compete with Amsterdam, and also owing to a general increase in the size of ships, the question arose whether the North Sea Canal would in the long run meet the Dutch interests.

A Government committee, instituted in 1909 to report about the improvement of the Canal, pointed to the sound prosperity of the harbour

and to the great significance the canal has for Dutch trade, and deemed it strictly necessary that the question of the dimensions of vessels passing through the Suez Canal and Panama Canal be dealt with.

If, accordingly, the construction of a larger lock at Ymuiden was deemed to be of urgent importance, the bill enacted on the second of January 1917, made provision also for future widening of the Canal.

The execution of these works was subject to the condition that the parties interested, in this case the municipality of Amsterdam and the province of North-Holland, should together contribute a third of the cost of construction.

The dimensions of the lock were made to correspond with the largest depth in the North Sea that would be practically within reach of the harbour of Ymuiden in future.

A depth of 15 M. below A.W.M. (14 M. below low tide), a length of 400 M. and a width of 50 M. are contemplated, so that the future lock will exceed all others in the world in size, and as to the width, will even have 1.5 times the size of the locks in the Panama Canal.

The proportions of vessels passing through the North Sea Canal already come very near to the depth of the existing lock.

In this respect the s.s. "Jan Pieterszoon Coen" (154×18.5 M.), the s.s. "Gelria" (170×20 M.) and the s.s. "Limburgia" and "Brabantia", (each 188×22 M.) must be mentioned.

In order to obtain a straight channel a new canal will have to be dug almost parallel to the mouth of the existing one.

The intention is to give this new canal a depth of 12 M. under A.W.M. (11 M. under low water) in order to increase this depth later on, if need be, in accordance with the depth of the then-existing entrance from the sea to the outer harbour ; the entrance canal at the land side will be made to correspond with the dimensions of the communicating part of the North Sea Canal. Between the Velzen railway bridge, where the new canal leading up to the new lock begins, and the municipal waters of Amsterdam (a distance of 18,000 M.), the North Sea Canal is to have a bottom-width of 100 M., a depth of 15.50 M. below A.W.M. (or 15 M. below the lowest canal level) and slopes of 31 in order that the largest vessels may be able to pass each other everywhere.

The curves are straightened, so that the smallest radius will amount to 3,000 metres South of the Canal. Astrip of ground, 87 M. wide, will be earthed up to the height of the canal-dike, which strip may serve for the building of an ordinary road and the construction of a railroad.

The North Sea harbour at Ymuiden is considered to be sufficient for the wants of the near future. In case of an increase of the dimensions of the vessels passing the canal, this harbour will, however, also be enlarged. The South pier will then be lengthened and a new North pier built, so that both reach a depth of 14 M. below A. W. M. The existing North pier will then be altogether removed so as to increase the water area from about 100 to over 250 hectares (one hectare is 10,000 square metres).

Shipping Movement of The Netherlands.

(Data supplied by the Department of Agriculture, Industry and Trade.)

Seagoing vessels entered (Number and total net measurement in cubic metres.)

	loaded		in ballast		together	
1913	14.952	48.516.945	2.044	2.982.782	16.996	51.499.727
1919	5.647	17.006.956	1.435	3.679.581	7.082	20.086.537
1920	5.101	16.460.453	1.429	2.769.864	6.530	19.230.317

Seagoing vessels cleared (Number and total net measurement in cubic metres.)

	loaded		in ballast		together	
1913	11.878	31.188.856	5.211	19.826.703	17.089	51.015.509
1919	4.408	10.367.071	3.062	10.151.336	7.470	20.518.407
1920	4.768	12.984.231	1.936	7.508.609	6.740	19.487.840

River craft entered (Number and carrying capacity in tons of 1,000 kilog.

	loaded		empty	
1913	56.586	29.007.257	34.807	9.859.792
1919	21.402	11.054.773	16.020	4.518.424
1920 (9 months) . .	16.862	10.522.934	10.959	2.138.582

	rafts		together	
1913	48	67.205	91.441	38.934.254
1919	126	172.781	37.548	15.745.978
1920 (9 months) . .	—	— (weight)	27.821	12.661.516

River craft cleared (Number and carrying capacity in tons of 1,000 kgs.)

	loaded		empty	
1913	58.851	34.218.719	29.251	4.210.387
1919	16.234	8.895.435	20.997	6.353.202
1920 (9 months) . .	14.453	9.028.409	13.033	3.536.508

	rafts			together
1913	54	9.477	88.156	38.438.583
1919	—	—	37.231	15.248.637
1920 (9 months)	—	—	27.486	12.564.117
		(weight)		

Note.—Before the war there was a characteristic distinction between the oversea trade and the inland trade ; in respect to the former the quantity of cargo entered always exceeded the quantity cleared, whereas the contrary was the case as far as the inland trade was concerned.

Conditions in oversea traffic, which are in the main dependent on the Rotterdam trade of bulky goods, have not changed, but a total change has occurred in the traffic inland, so that now in both oversea and inland trade quantities entered exceed quantities cleared.

Shipping on Rivers and Canals across the Borders of Contiguous Countries.

(a) *German Trade.*

Via the Ems and Dollart (past Delfzijl)

		Number of vessels	Total carrying capacity in tons
entries	1913	2.224	433.955
	1919	1.042	233.788
	1920 (9 months)	1.174	103.093
clearances	1913	2.212	576.000
	1919	1.042	233.788
	1920 (9 months)	895	138.373

Via the Rhine (past Lobith)

entries	1913	48.699	26.373.576
	1919	10.323	6.615.597
	1920 (9 months)	12.051	7.146.744
clearances	1913	39.797	23.476.167
	1919	10.104	6.255.996
	1920 (9 months)	11.700	7.014.885

(b) *Belgian Trade.*

Via the South William Canal (Zuid Willems-Vaart) (past St. Pieter)

		Number of vessels	Total carrying capacity in tons
entries	1913	7.094	1.947.381
	1919	5.686	1.585.148
	1920 (9 months)	3.375	934.603
clearances	1913	7.750	3.134.132
	1919	5.182	1.429.399
	1920 (9 months)	2.809	947.791

Via the Scheldt (past Hansweert)

entries	1913	17.222	6.253.360
	1919	9.000	3.818.201
	1920 (9 months)	9.638	3.178.895
clearances	1913	16.665	6.074.134
	1919	8.997	3.801.580
	1920 (9 months)	9.664	3.121.792

Via the Terneuzen Canal (past Sas van Gent)

entries	1913	7.210	2.119.532
	1919	1.996	856.971
	1920 (9 months)	1.948	1.293.169
clearances	1913	6.036	2.083.858
	1919	2.052	864.791
	1920 (9 months)	1.962	1.331 276

Vessels arrived at Amsterdam according to description and nationality.

Flag	1919						1913					
	Steamer	Gross capacity in cubic metres	Sailing vessels	Gross capacity in cubic metres	Total 1919	Total gross capacity in cubic metres	Steamer	Gross capacity in cubic metres	Sailing vessels	Gross capacity in cubic metres	Total 1913	Total gross capacity in cubic metres
Dutch . . .	888	4,334,518	90	25,061	978	4,359,579	1,327	6,267,663	146	32,974	1,473	6,300,637
British . . .	141	750,960	—	—	141	750,960	599	3,401,777	2	564	610	3,402,344
German . .	144	355,613	9	13,737	153	369,350	247	1,721,255	8	18,357	255	1,739,612
Norwegian	24	56,199	2	7,970	26	64,169	124	305,449	1	2,222	125	307,671
Swedish . .	25	70,635	2	4,262	27	74,897	100	347,862	—	—	100	347,862
Danish . . .	2	16,255	—	—	2	16,255	29	132,855	1	380	30	133,235
Finnish . .	1	3,022	1	4,372	2	7,394	—	—	—	—	—	—
Italian . . .	1	9,136	—	—	1	9,136	1	8,052	—	—	1	8,052
French . . .	1	918	—	—	1	918	1	7,098	—	—	1	7,098
Austrian .	—	—	—	—	—	—	4	34,848	—	—	7	34,848
Belgian . .	1	10,137	—	—	1	10,137	7	21,696	—	—	4	21,696
Spanish . .	5	17,258	—	—	5	17,258	—	—	—	—	—	—
American .	16	203,438	1	9,483	17	212,921	—	—	—	—	—	—
Japanese .	10	139,015	—	—	10	139,015	—	—	—	—	—	—
Greek	1	14,719	—	—	1	14,719	—	—	—	—	—	—
Portuguese	1	708	—	—	1	708	—	—	—	—	—	11
Total	1,261	5,982,531	105	64,885	1,366	6,047,416	2,439	12,248,555	158	54,500	2,597	12,303,055

Number of Vessels Cleared.

Destination.	In 1919		In 1913	
	Total	In ballast	Total	In ballast
Great Britain	496	179	1,178	352
Germany	128	85	422	27
Denmark	26	—	25	2
Norway	23	4	54	3
Sweden	50	11	53	2
Russia (Baltic)	8	3	66	24
Belgium	12	10	27	14
France	61	6	39	4
Spain and Portugal	71	15	51	—
Italy	5	1	45	—
Mediterranean				
Greece, Turkey	6	—	71	—
Levant, Danube and Egypt				
Africa	11	4	1	—
Dutch E. Indies	31	4	106	1
West Indies and Surinam	23	4	29	—
Britsh India	1	1	1	1
Finland	3	2	—	—
North America and Canada	71	66	26	16
South America	38	14	51	2
Malta	1	—	—	—
Dutch harbours	298	263	333	316
Austria	—	—	1	—
Total number of vessels	1,363	672	2,579	764
Of which in ballast (per cent.)	—	49.3	—	2.95

Vessels which left Amsterdam in 1919,

according to description and nationality.

Flag.	Steam-vessels number	Capacity in M³. gross	Sailing vessels number.	Capacity in M³. gross	Total 1919	Total capacity in M³. gross
Dutch	917	4,490,969	89	25,979	1,006	4,516,938
British.....	138	700,224	—	—	138	700,224
German.....	132	325,990	8	12,913	140	338,903
Norwegian	22	48,215	1	2,696	23	50,911
Swedish.....	24	64,801	2	4,262	26	69,063
Danish	4	17,081	—	—	4	17,081
Finnish	1	3,022	—	—	1	3,022
French	2	1,597	—	—	2	1,597
Italian.....	2	17,340	—	—	2	17,346
Spanish	3	10,978	—	—	3	10,987
Greek	2	15,918	—	—	2	15,918
Portuguese	1	708	—	—	1	708
American	5	66,963	—	—	5	66,963
Japanese	10	139,015	—	—	10	139,015
Total...	1,263	5,902,820	100	45,850	1,363	5,948,670

The Netherlands Mercantile Marine.

(Particulars supplied by the Department of Agriculture, Industry and Trade).

The following statement gives particulars about the number of sea-going ships of which the Mercantile Marine of the Netherlands consisted at the end of 1913 and at the end of 1920, and also about the total net measurement of these ships in cubic metres. (One register ton is equal to 2.83 cubic metres).

	1913		1920	
	Number	Measurement	Number	Measurement
Steamships			427	2,209,657
Motor-vessels	387	1,832,244	79	64,889
Tugs			64	1.636
Sailing-vessels	400	113,763	283	78,425

No statistics have been compiled yet in respect to the numerous craft plying the rivers, canals and other inland waters of the Netherlands. The Traffic Bureau of the Crisis Section of the Department of Agriculture, Industry and Trade state, however, that the following particulars relating to inland shipping should, according to expert opinion, not be very far from exact. These particulars refer to the position on October 1st, 1920

		Total carrying capacity in tons of 100 kilog.
7,776	sailing ships	698,935
9	sailing ships with auxiliary engine	983
240	freight steamers	24,929
1,209	freight motor boats	75,285
2,650	towed or trailed vessels	1,072,067
253	passenger boats	14,377
753	tugs	19,348
18	other vessels	339
12,908	vessels	1,906,263

Note · the expression "towed or trailed vessels" refers to lighters and similar craft that have no power of motion but are taken in tow by tugboats or are trailed along the canals by means of ropes, pulled by horses on the bank ("trekschuiten").

Out of the above 12,908 vessels:

5,309	carried less than			100 tons
2,890	between 100 and			200 tons
772	»	200	»	300 tons
527	»	300	»	400 tons
398	»	400	»	500 tons
722	over	500 tons		

Comparison of Passenger Traffic of Principal Ports before and after the War.

(Figures supplied by the municipal authorities concerned.)

Rotterdam (exclusive of Hook of Holland).

Per Rotterdam Lloyd.

	Arrived from Netherl. East Indies & way ports	Left for Netherl. East Indies & way ports
June 1914	410	416
July 1914	286	620
Nov. 1918	none	none
Jan. 1919	2	384
Febr. 1919	181	199
March 1919	192	
Year 1920	6,032	6,587

Per Batavier Line:

	London	London
1913	14,499	16,017
1914	13,366	19,825
1919	4,373	4,555
1920	2,671	3,500

Per Hull Line:

	Hull	Hull
July 1914	1,689	1,845
Nov. 1918	6	42
Jan. and Febr. 1921	114	115

Per Holland America Line:

	New York & way ports	New York & way ports
July 1914	3,071	2,756
Nov. 1918	123	none
Jan. and Febr. 1921	1,963	7,151

With other ships (estimated figures).

	Various ports
July 1914	150
Nov. 1918	40
Febr. 1921	100

Amsterdam.

	All ports		All ports	
1919	A 5,925		A 5,529	
	B 3,510	9,435	B 5,809	11,338
1920	A 7,220		A 7,123	
	B 4,942	12,162	B 10,257	17,380

A = Netherlands subjects; B = others.

Flushing.

	Folkestone	Folkestone
July 1914	11,263	11,060
Nov. 1918	none	none
Jan. 1921	766	869

Passenger Fares.

(Compiled from information supplied by the companies).

The prices are Guilders (unless otherwise specified).
b) means: per berth
c) means: per cabin (generally a 1 to 3 berth outer cabin, occupied by one passenger, on one of the intermediate vessels).

Hollandsche Stoomboot Maatschappij.

Amsterdam-London	July 1914	9.—
	Nov. 1918	60.—
	March 1921	21.—
Amsterdam-Hull	July 1914	9.—
	Nov. 1918	60.—
	March 1921	36.—

Batavier Line.

		Cabin I	Cabin II
Rotterdam-London	1914	12.60	7.80
	Jan. 1919	60.—	
	Sept. 1920	30.—	20.—

Zeeland Line.

			Cabin I	Cabin II
Flushing-Folkestone		1914	£1.—.—c	£—.4/—b
	Nov.	1918	suspended	
	Oct.	1920	£1.10.—c	£—.4/—b
	Jan.	1921	£1.10.—c	£—.4/—b

Holland-America Line.

					Cabin III
R'dam-New York	Sept.	1920	—	431.25	—
	Nov.	1920	1,125 c	—	—
	Jan.	1921	—	—	350

Royal Holland Lloyd.

				cabin I	cabin II	middle cabin	tween-deck
Amsterdam to Buenos Aires.							
Jan. 1914			frcs.	1050.—b			
July 1918				1965.—b	1179.—b		
Feb. 1919				1020.—b	468.—b	360.—b	
Feb. 1921				1680.—c	840.—b	600.—b	300.—

				cabin I	cabin II	middle cabin
La Coruna	Jan.	1914	frcs.	125.—		
	Feb.	1919		144.—b	72.—b	54.—b
	Feb.	1921		300.—b	180.—b	
Habana	Feb.	1921		960.—b	648.—b	
Vera Cruz	Feb.	1921		1056.—b	720.—b	
New York	July	1918		840.—b	504.—b	

Nederlands S. S. Co. & Rotterdam Lloyd.

Amsterdam-Rotterdam to:

Southampton	(April 1914)	30.—	18.—	
Lisbon	»	96.—	66.—	
Tanger	»	108.—	72.—	
Algiers	»	132.—	90.—	
Genoa	»	144.—	96.—	
Port Said	»	252.—	168.—	
	(1917)	300.—	200.—	120.—
Aden	(April 1914)	480.—	300.—	180.—
Colombo	»	600.—	400.—	240.—
	(1917)	700.—	450.—	300.—
Singapore	(April 1914)	790.—	510.—	300.—
	(1917)	930.—	580.—	350.—
	(Jan. 1921)	1,600.—	1,100.—	650.—

Batavia	(April 1914)	860.—	530.—	300.—
	(1917)	1,000.—	600.—	350.—
	(Jan. 1919)	1,500.—	600.—	600.—
	(May 1919)	1,200.—	800.—	500.—
	(Jan. 1921)	1,600.—	1,100.—	650.—
Batavia to San Francisco	(Nov. 1918)	820.—	430.—	

Royal West Indian Mail (January 1921).

Amsterdam to:

	Cabin I	Cabin II	Cabin III	Freight Steamer
Madeira	400.—	200.—		
Paramaribo	700.—	400.—	550.—	
Curaçao	700.—	400.—	550.—	
Puerto Colombia	900.—	500.—		
St. Thomas.	750.—	425.—	550.—	
Port au Prince	800.—	450.—		
Guayaquil				900.—
Callao				1.000.—
Antofagasta.				1.050.—
Valparaiso				1.100.—
Corral				1.250.—

Merchandise imported into, and exported from, the Netherlands.

(Figures supplied by the Department of Agriculture, Industry and Trade.)

Oversea Traffic.	1913 (tons of 1,000 Kilograms)	1919 (tons of 1,000 Kilograms)
Imports	26,020,445	4,655,146
Exports	10,090,387	1,053,086
Transit (with transhipment)		3,268,687
Transit (without transhipment		368,446
Traffic by Land	36,110,832	9,345,365
Traffic on Rivers and Canals.		
Imports	23,856,171	4,205,719
Exports	29,290,054	609,375
Transit (with transhipment)		2,723,631
Transit (without transhipment)		4,778,177

Note: The 1919 figures for the traffic on rivers and canals may also be grouped as follows:

	(tons of 1,000 Kilograms)
Belgian boundary, inward	4,497,697
outward	2,180,769
German boundary, inward	2,799,948
outward	2,838,478

Fuel for Shipping.

The quantity of coal cousumed in 1920 for inland shipping purposes amounted to 195,040 tons ("bootjes" coal).

In the same year 486,000 tons of coal (mostly imported) were used for ocean navigation.

These figures refer to coaling of Netherland ships in Netherland waters.

Prices during the year were the following (Guilders per ton.—one guilder at par equals 1 s. 8 d.):

	"bootjes" coal	domestic coal	imported coal
Jan.	43.50	49.—	60.—
Febr.	43.50	55.—	60.—
March	48.50	57.50	68.50
Apr.	57.35	57.50	68.50
May	57.—	57.50	68.50
June	63.30	64.75	75.—
July	63.30	64.75	75.—
Aug.	73.15	71.80	83.—
Sept.	71.70	71.80	83.—
Oct.	71.75	71.80	83.—
Nov.	71.75	71.80	83.—
Dec.	56.80	62.—	73.—

Traffic on the Principal Waterways in the Netherlands.

NAME OF PORT OR WATERWAY	POINT WHERE OBSERVATIONS WERE MADE	NUMBER OF VESSELS				TONNAGE (tons of 1,000 kilograms)				REMARKS
		In 1913	In 1920	% of increase in 1920	% of decrease in 1920	In 1913	In 1920	% of increase in 1920	% of decrease in 1920	
		Seagoing vessels				Seagoing vessels				[1] gross measurement.
North Sea Canal	1 Ymuiden	4.985	4.212	—	15.5	25.902.633[1]	19.260.143[1]		25	[2] increase caused by incidental shipments of sand to Amsterdam.
		River craft				River craft				
Amsterdam trade	(compare 7)	15.621	30.544	[2] 95.5		1.523.550	525.333	245[2]	—	
Nieuwe Waterweg (Rotterdam Waterway)	2 Hook of Holland	22.645	13.207	—	42	77.953.695	46.623.465	—	40	
	3 Rotterdam	19.690	11.446	—	42	71.628.962	41.771.509	—	41.5	
		Seagoing vessels				Seagoing vessels				[1] gross measurement.
Dordrecht	4 Dordrecht	50	127	154		154.164[1]	170.330[1]	10.5	—	[2] increase in coal, artificial manure, limestone, scrapiron, and basalt trades.
		River craft				River craft				
harbour		4.443	6.143	38	—	4.222.839	781.974	85[2]	—	
		Seagoing vessels				Seagoing vessels				
Delfzijl harbour	5 Delfzijl	774	1.077	39		1 846.923[1]	801.691[1]	—	56.5	[1] gross measurement
		Seagoing vessels								[1] Exclusive of fishing craft.
Harlingen	6 Harlingen	940[1]	376[1]	—	60	2.329 248[1,2]	752.855[1,2]	—	67.5	[2] gross measurement.
		River craft								
harbour		22.919	14.656	—	36					
Ymuiden (fishing port)	7 Ymuiden (compare 1)	29.577	22.114	—	25	6.686.360	4.351.840	—	35	
Rhine River	8 near German boundary (at Lobith)	96.762	33.383		65.5	52.354.137	20.381.461	—	61	
Lower River	9 Arnhem	27.754	14.945	—	46.5	3 363.238	2.010.801	—	40	
Lek River	10 Vreeswijk	52.131	35.937	—	31.5	8.321.178	6.780.645	—	18 5	

		[illegible]	[illegible]	—	23	1.691.399	1.535.519	—	9
Meuse River	12 Hedel	8.236	6.467		21.5	1.755.804	894.839		49
	13 Andel	28.672	23.793	—	17	3.987.085	3.655.129	—	8.5
Lauwerzee-Harlingen canal	14 Kiesterzijl	17.291	8.941	—	48.5	1.201.700	788.749	—	34.5
Stroobos - Lemmer canal	15 Terhorne Locks	20.851	18.205		12.5	1.527.555	1.383.900	—	9.5
	16 Lemmer Locks	12.711	12.954	2	—	1.344.234	1.245.015	—	7.5
Drentsche Hoofdvaart canal	17 Norg Bridge	12.901	10.407	—	19.5	571.884	628.667	10	—
Eemskanaal (Groningen-Delfzijl) canal	18 Delfzijl Locks	7.909	4.694	—	40.5	960.992	608.323	—	36.5
Eemskanaal—Hoendiep connection	19 Groningen	24.986	27.567	10.5	—	1.651.164	1.879.298	14	—
Hoendiep (Groningen—Friesland canal)	20 Gaarkeuken Locks	29 402	27.659	—	6	1.730.089	1.645.503	—	5
Meppelerdiep (Meppel-Zwartsluis canal)	21 Zwartsluis	19.038	15.398	—	19	1.450.914	1.321.595	—	9
Willemsvaart (Ysel-Zwartewater canal)	22 Katerveer	21 115	18.711	—	11.5	1.595.626	1.602.150	0.5	—
Water connecting Waal and Meuse Rivers	23 St. Andries	7.550	3.208	—	57	1.498.457	447.392	—	70
Amsterdam—Zuiderzee	24 Oranjesluizen (Orange Locks at Schellingwoude)	59.064	47.357	—	19.5	[1]	[1]	—	—

[1] no particulars about tonnage available

Traffic on the Principal Waterways in the Netherlands *(continued)*.

NAME OR PORT OF WATERWAY	POINT WHERE OBSERVATIONS WERE MADE	NUMBER OF VESSELS				TONNAGE (tons of 1000 Kilograms)				REMARKS
		In 1913	In 1920	% of increase in 1920	% of decrease in 1920	In 1913	In 1920	% of increase in 1920	% of decrease in 1920	
Noordhollandsch kanaal North Holland canal	25 Nieuwediep	4.287	4.633	8	—	540.968	434.727	—	19.5	
	26 Purmerend	18.019	12.095	—	33	1.120.227	833.266	—	25.5	
	27 Willemsluizen (William Locks)	40.636	32.615	—	19.5	1.752.994	1.655.917	—	5.5	
Merwede-kanaal (Amsterdam-Gorinchem canal)	28 Zeeburg (near Amsterdam)	69.152	59.884	—	13.5	10.998.897	10.388.954	—	5.5	
	29 Utrecht	81 823	64.474	—	21	11.682.397	10.069.708	—	14	
	30 Gorinchem	12.272	13.387	8.5	—	2.337.745	2.580.388	10.5	—	
Keulsche vaart (Amsterdam—Utrecht-Vreeswijk canal)	31 Diemerbrug	23.083	23.224	0.5	—	844.446	1.195.796	41.5[1]	—	[1] increase caused by temporary sand traffic.
Amsterdam - Gouda - Rotterdam canal	32 Gouda	40.189	34.939	—	13	3 203.530	2.998.365	—	6.5	
Voorne canal	33 Nieuwesluis	12.310	6.830	—	44.5	941.865	416.939	—	56	
Kanaal door Zuid-Beveland (South Beveland canal)	34 Hansweert	Seagoing vessels 29	112	286	—	25.611	84.763	231	—	
		River craft 152	137	—	39	16.896.735	10.669.008	—	37	
Walcheren canal	35 Veere	Seagoing vessels 65.312	39.785	—	10	57.584[1]	87.727[1]	52.5	-	[1] gross measurement.
		River craft 11.373	2.263	—	7	1.579.549	933.739	—	41	
	36 Vlissingen	Seagoing vessels 1.944	10.554	16 5	—	676 496[1]	974 402[1]	44	—	

		River craft								
		10.835	8.644		20	1.329.275	700.448	—	47.5	
		Seagoing vessels								
Terneuzen-Gent canal	37 Terneuzen	37 711	1.782	—	52.5	11.272.778[1]	5.316.374[1]	—	53	[1]) gross measurement.
		River Craft								
		21.054	13.367	—	36.5	5.399.678	2.823.776	—	47.5	
		Seagoing vessels								
	38 Sas van Gent	3.103	1.680		46	9.341.634[1]	4.769.406[1]	—	49	
		River craft								
		16.749	7.327		56	4.213.019	1.994.735	—	52.5	
Dieze en Zuid Willemsvaart (River Dieze and South William Canal forming a connection from the *Meuse* via *'s Hertogenbosch* and *Helmond*, thence across the *Belgian border* and back into Holland, terminating at *Maastricht*)	39 Engelen & Crèvecoeur	29.457	22.382	-	24	4 818.081	3.719.074	—	23	
	40 Lock No. 1 above 's-Hertogenbosch	17.198	13.812	-	19 5	4.073.229	3.116.878	—	23.5	
	41 Lock No. 8 above Helmond	13.515	11.116		17.5	3.525.047	2.832.005	—	19.5	
	42 Lock No. 16 near Weert	10.965	5.525	-	49.5	3.244 080	1.724.867	—	47	[2] increase caused by completion of new canals connecting the Donge with the River mark and with the central part of the province of North Brabant extending as far as Tilburg.
	43 Lock No. 19 near Maastricht	16.447	11.905	—	27.5	4.619.444	3.374.768	—	27	
Maastricht-Liege canal	44 Loch No. 5 above Maastricht	13.613	8.848	—	35	4.048.622	2.587.895	—	36	
Donge River	45 Geertruidenberg	9.563	16.445	72	—	447.917	1.320.404	195[2]	-	

III.

MOTOR AND AIR TRANSPORT.

Motor Transport.

The first use made of motor trucks dates from 1898. In November of that year the Minister of Public Works issued the first permit for riding motorcars (trucks) on roads under Government administration, pursuant to the regulations concerning Government roads of January 19th, 1896 (Statute Book No. 25).

At first this kind of traffic did not develop to any extent, so that in the year 1914 there was yet no question of any considerable motor-trucking. Then came the mobilisation and the lack of gasoline (motor spirit), putting a stop to all motor traffic except for military purposes. Only after the conclusion of peace was a marked increase noticeable. The great advantages of trucks had become evident in the use made thereof by the military. Moreover, the high railway rates and the over-supply of motor-trucks in countries that had participated in the war, contributed to this increase.

Only seven out of the eleven provinces have compiled statistics relating to motor-trucks. These statistics are appended.

The use of trail-cars has likewise increased. The first permit to ride them on Government roads dates from October 18th, 1905.

Their introduction necessitated a revision of the legal provisions thereanent. These were revised in the second half of 1920. Since then, 119 permits have been issued.

Civil Aerial Traffic in the Netherlands.

(Data supplied by the Ministry for Public Works.)

After the conclusion of the armistice the necessity arose to pay more attention to aerial traffic.

One of the first consequences of this necessity was that the plan was conceived to hold the Eerste Luchtverkeer-Teutoonstelling (First Aerial Traffic Exhibition at Amsterdam), which was actually opened on August 1st, 1919, and was energetically supported by the Government as well as by the Municipality of Amsterdam. The object of this exhibition was to see that better notions as to what might and might not be expected with regard to air traffic should find acceptance in wider circles.

The following Governments and firms took part in the demonstrations on the "Elta" flying grounds:

1. The Netherlands Government ;
2. The French Government ;
3. The Italian Government ;
4. The Portuguese Government ;
5. The American Government ;
7. A. V. Roe and Co. Ltd., Manchester ;
8. H. & M. Farman, Moulineaux ;
10. Morane Saulnier, Paris ;
11. Soc. L. Bréguet, Villacoublay ;
12. The Aircraft Manufacturing Co.. Ltd., London ;
13. The Blackburn, Co., Leeds ;
14. The Handley Page Co., Ltd., Cricklewood ;
15. Vickers Ltd., Sheffield ;
16. Soc. Ansaldo, Turin ;
17. Nederlandsche Automobiel- en Vliegtuigenfabriek "Trompenburg" Ltd., Amsterdam ;
18. Nederlandsche Vliegtuigenfabriek "Fokker" Ltd., Amsterdam.

The number of aeroplanes sent in amounted to 51, 46 of which were used for flights.

Nearly every day Dutch flying machines of different types went up. Besides, the exhibition was visited by 13 foreign hydroplanes, of which 9 were English and 4 Italian ; almost daily Dutch naval aviators made flights from their aviation camps to the exhibition and used hydroplanes, one of which was built by "Van Berkel's Patent" at Rotterdam. Out of the 150 airmen, who came by air to the "Elta", or demonstrated there, 44 were Netherlands subjects.

The public were given an opportunity to make short flights above the grounds, of which opportunity during the exhibition (2 Aug. - 14 Sept.) 3,265 paying passengers availed themselves, while we may safely assume that about 3,000 more passengers ascended who had either been invited or contributed to some charitable purpose.

The smallest number of paying passengers carried on a single day was 1, the largest 219.

The fact that the number of insurance policies taken out at the passage office fell, according as the number of passengers increased, affords a proof of the important success achieved by the "Elta", namely a decrease of the excessive fear entertained by the public with regard to flying.

The "Elta" grounds were visited by 545,167 paying persons.

Participation in Aerial Traffic.

Seeing that Holland is too small for any expectations to be entertained of inland air traffic, at any rate for some time to come, she was from the beginning destined to take part in international traffic and to form the meeting point of the air lines from the various countries of Western Europe.

Government Action.

In November 1919 a State Commission for Aerial Navigation was instituted, whose task it was to advise the Government in all matters concerning aerial navigation ; already during the years of the war an experimental service was instituted as a sub-division of the Munitions Office.

When the Munitions Office was discontinued, the Governmental experimental service was transferred (in the early part of 1920) to the Ministry for Public Works, where now all affairs relating to civil aerial traffic are being treated.

Moreover, an advisory board was instituted by Royal Decree of 27 February 1920, No. 71, which Board had to advise the Minister.

The support granted on the part of the Government to civil aerial navigation had manifested itself in the first place in the fact that the military flying grounds Schiphol and Schellingwoude have been put at the disposal of private parties. These grounds will gradually, at the expense of the State, be provided with the equipment necessary for civil traffic, while on the air routes from these grounds to foreign countries suitable landing places are being provided.

A provisional arrangement was made to regularly exchange service and weather reports by means of wireless telegraphy, in the beginning only between the Netherlands and England, later on also between the Netherlands and Germany. The signal service with foreign countries and with the aviation ground Schiphol near Amsterdam was performed by the military wireless station at Soesterberg, while the Koninklijk Nederlandsch Meteorologisch Instituut, (Royal Dutch Meteorologic Institute) at De Bilt supplied meteorological data.

This improvised report service has contributed a good deal to the success of the trial services in 1920.

Moreover, an amount of 200,000.— guilders was appropriated on the budget for 1920, to be paid as a subsidy to K.L.M. (Koninklijke Luchtvaart-Maatsch., or Royal Aerial Navigation Co.) to partly compensate for the loss sustained by the company during 1920 and the probable loss in 1921;

Legislation.—Legal provisions concerning air traffic do not yet exist in this country, but are being prepared, and will probably be ready in 1921 : not before then will it be possible for Holland to join the conventions for aerial navigation, or to make separate agreements with various States relating to air traffic.

Though there is no legal compulsion to submit to state control, the Government has declared itself willing, on specified conditions, provisionally to register the aeroplanes of the K.L.M. and to supply them with certificates of air-worthiness.

The flying machines thus registered bear the marks prescribed by the Convention for Aerial Navigation.

The Royal Aerial Nav. Cy. for the Netherlands and Colonies was established on October. 7th, 1919.

Aerial Services in 1920.

On the 17th of May, 1920, a provisional every-other-day service to England was opened, changed on June 28th into a daily service, in co-operation with the Aircraft Transport and Travel Co. Ltd. On the 12th of July a twice-daily service to England was introduced.

A beginning was made with a regular mail service on July 5th ; seeing that the British Government had concluded a mail contract with the Handley Page Transport Co. Ltd., the K.L.M. also entered into an agreement with this company and partook of the daily mail transport between England and the Netherlands. Between Germany and the Netherlands an every-other-day service was opened on September 1st, 1920, in co-operation wirth the Deutsche Luftreederei ; this service was altered on September15th into a daily one. Both services were stopped on November 1st.

Flights were made from Amsterdam to Hamburg via Bremen, corresponding with the lines Bremen-Berlin and Hamburg-Copenhagen.

On the above lines, viz., Amsterdam-England and Amsterdam-Germany, 584 machines were used in 1920, employed by the K.L.M. and conveying 345 passengers, 21,963 kilos of commodities and 2,962 kilos of mail.

Except a few forced landings, owing to mist or low clouds, causing only material damage, no accidents with aeroplanes have occurred on the lines of the K.L.M.

Plans for 1921.

For aerial services to be opened in 1921, the K.L.M. disposes of an air fleet, consisting of :

2 Fokker transport machines, already purchased in 1920 ; 2 Fokker C machines, reconstructed into transport machines provided with a B.M.W. motor and able to carry passengers ;

8 Fokker transport machines with Siddeley Puma motors and fit to convey 5 passengers ;

1 Airco "9" with Siddeley Puma motor with accommodation for 2 passengers ;

Of the said machines, 10 will be equipped with wireless telephone.

The intention is to open the following services with the above machines in co-operation with foreign companies, on April 1st, 1921 ;

1. A service to London, once or twice per day, and back.
2. A service to Brussels, twice daily and back ; once going as far as Paris.
3. A service to Hamburg, twice daily.

The aerial services start from Amsterdam, but, as far as those to Brussels and London are concerned, will touch at Rotterdam.

Aviation Grounds.

The following military aviation grounds have been opened to civil aviation.

A. for aeroplanes :

1. Schiphol.
2. Soesterberg (conditionally).
3. De Kooij (only for domestic traffic).

B. for hydroplanes :

1. Schellingwoude.
2. De Mok (on Texel Island) (conditionally).

The Rotterdam municipal grounds are also at the disposal of private aviation.

Aeroplane Industry.

During the war a successful effort was made to build aeroplanes in the Netherlands. It is, however, easy to understand that after the termination of hostilities, when this industry in the belligerant countries had to face a considerable decline and when much material was put on the market at very low prices, a great development of the Dutch aeroplane industry was out of the question.

In The Netherlands the following concerns are now engaged in constructing aeroplanes, especially on behalf of civil traffic.

1. The N. V. Nederlandsche Vliegtuigenfabriek " Fokker " at Amsterdam.
2. N. V. Maatschappij " Van Berkel's Patent ", at Rotterdam.
3. Carley's Vliegtuigenfabriek at Ede.
4. Nederlandsche Automobiel- en Vliegtuigonderneming, at Cuijk.

Royal Air Navigation Co. for The Netherlands and the Netherlands Colonies.

The air services to England and Germany, which were suspended on November 1st, 1920, will be resumed in March or April 1921.

The winter of 1920-1921 was used to buy materials, to increase the staff, and to conduct negotiations with the post office and the custom-house, in order to ensure regular mail services for 1921.

Although great safety and regularity were attained, only a limited number of passengers and parcels were conveyed in 1920. Prices in 1921 will be lowered by 25 per cent.

The Dutch Indies.

I.

JAVA RAILWAYS.

The question of transport is one of the most important ones of Java and its history has been very interesting. The construction of roads is of the utmost importance, more so as there are practically no rivers or canals. Only the Solo River and the Brantas have in the early days been used for navigation, and the Tji-Manoek in Western Java was used for small river-boats. There are vast plains where canals could be constructed, but difficulties, caused by the heavy tropical rains, make such work costly and often useless. A small canal was made from Tandjong Priok about 10 km. long.

Of course the seas around the Island have always offered splendid transport opportunities, but only coastal towns could profit thereby, and as the island of Java is practically everywhere 100 km. wide, the inland towns and districts had to be provided with some other means for transport and traffic.

When Governor Daendels arrived in Java, transport by sea was practically impossible on account of the war with England. He therefore energetically started to work on what is called the Groote Postweg, and in a few years part of this road, from Anjer to Besoeki, was completed. This road was mainly intended for military purposes, and it was the intention to connect Bandoeng, which was to become the centre of defence, with Batavia and Anjer, Semarang, Sourabaya and Banjoewangi, a distance of about 1,000 kilometres, a colossal enterprise, which made in those times a tremendous impression. Eventually (1830) branch roads were constructed from this main road, which naturally assisted in the early development of the interior of Java. Yet these roads were not sufficient for the traffic which was increasing on all sides, and the Netherlands Trading Society often complained that the produce could not be transported to the coast. The cost remained exceedingly high.

The passenger traffic was fairly quick but very expensive. Private firms asked from 33 to 67 cents per kilometre, and the Government wanted from 83 to 133 cents for the same distance ; the price for the transporta-

tion of goods was not much better. For a picul of coffee, for instance, from Kedoe to Semarang about *f* 1.50 was paid in 1835 ; and five years later, when production was considerably increasing, even *f* 3.30 was asked. In those days the goods were either carried by coolies, packhorses or loaded in oxwagons. Later, mules were imported as well as camels, but both proved failures.

In 1842 railways were first mentioned in Java but only the rails were meant and the trucks were to be drawn by oxen or buffaloes. But even that did not eventuate. Eighteen years later the first engineer was sent from Holland to survey a railway line from Semarang to the Vorstenlanden (Native Sultanates of Soerakarta or Solo and Djogjakarta or Jocja). This was the first real beginning of railways in Java.

The results of the engineers' survey were not unfavourable, but for the enterprise money was wanted and that seemed almost unobtainable. Neither the Government nor the Trading Society were anxious to finance the railways, partly because they feared that the native population would not take to this modern way of conveyance. Finally a new company with French capital, the " General Company of Commerce and Industry ", was established. This concern procured a concession to build the Netherlands Indian Railway, Semarang-Vorstenlanden, with a branch to Fort Willem I, for a period of 99 years. The Government guaranteed 4.5 % for the first 38 years. In 1864 the Company was also granted a concession for the line Batavia-Buitenzorg.

Great difficulties had to be overcome, such as landslides and the hot and damp climate to which the Dutch engineers were not accustomed.

The beginning of railway construction was not a success. Only in 1867 a small part of the Semarang line was completed.

The General Company of Commerce and Industry went bankrupt, and in 1869 the work had to be stopped till the Government decided to give financial assistance.

In 1870 the first railway service was opened from Semarang to Solo; a triumph for the Company, and a wonderful spectacle for the indigenous population of that centre of old-Javanese life, Soerakarta. But futher disappointments cropped up ; an intended debenture loan failed and again the Government had to come to the assistance of the Company. In 1873 the railway was completed to Djocja and at the same time the line Batavia-Buitenzorg was completed ; the construction of the latt er had-taken nine years, al though the distance was only 56 km. After it had been proved that the natives were not averse to the new invention, the Government took the railway question seriously in hand.

In 1875 a bill was passed to construct several small railway lines, mainly in order to connect the hinterland with Batavia and Sourabaya. This was the commencement of the growth of this latter place, whilst the connection of Batavia meant the construction of a large tunnel.

The bill passed in 1875, above referred to, laid down the principle that the railways should as much as possible be constructed and operated by the State.

The first railway connecting Batavia with Sourabaya via Semarang

was opened in 1894. The traffic was, however, still very slow and met with plenty of obstacles, one of which was the difference in gauges between the Netherlands Indian and the State Railways.

Improvements have gradually been made and co-operation between Government and private institutions has resulted in a fairly good rail- and tram-way system. There is a total length of 2,600 kilometres of railway and 2,300 kilometres of (steam) tramway.

There is ample scope for extension, and the Government program comports considerable improvements on old lines as well as a number of new constructions. Electrification is also suggested and the line Batavia-Buitenzorg will be the first to be run on electric power. Electric power has proved considerably cheaper than coal, and Java, with its immense quantity of water-power should experience little difficulty in constructing an electrified railway system, plans for which are already in existence. At some places where no railroad has as yet been constructed, motorbuses are running to meet local needs.

It is solely owing to the energetic action taken by Government and individuals that during the last twenty years Java has been able to expand her trade in the remarkable way she has done. What would have been the use of large sugar, tea and other estates without a thoroughly sound railway system ?

The teak forests and even the petroleum fields near Rembang could not have been exploited and nobody in the interior would have thought of industrialization. The quick development of Bandoeng to one of the finest towns of Java would have been impossible and health resorts like Garoet, Magelang and Tosari, which offer to Europeans such a pleasant climatic change, would have been quite far-distant spots.

The results obtained were also very satisfactory. In 1892 the total number of travellers on the Java railways was nearly 9 million and on the tramways 7 million.

In 1917 the figures were 55.5 million by train and 60 million by tram.

The goods traffic in 1892 by train amounted to about 0.5 million tons, by tram to about 25,000 tons. In 1917 these figures ware 7 million and 2,5 million tons respectively. The " tramways ", as they are always called, are merely secondary (narrow-gauge) railroads.

Java Express.—Times move quickly and the result apparently is that people want to do likewise. Up to now a train journey from Batavia to Sourabaya takes 30 hours, and since 1913 the minds of those in authority have been busy establishing a one-day service between the two most important business centres of the Dutch East Indies. In 1913 experimental trips have taken place on the line Tjikampek-Pegadenbaroe and these were repeated in 1915 on the section Tjikampek-Cheribon. The war has been blamed, and rightly so, for the delay in furthering the plans for the express service.

The speed during the trial trips was over 125 kilometres per hour, which is the world record on a 3.5 ft. gauge, and drew considerable attention from outside.

As a result of the trial trips the so called 2 C1 locomotive with two singly-working cylinders was changed to a 2 C1 locomotive with four cylinders, compound super-heater type with feed-heater. The capacities of locomotives and tenders were accordingly enlarged.

The designs were made in Java and the engines were built by the Company "Werkspoor" at Amsterdam in accordance with the two-cylinder prototype furnished by the Swiss Lokomotiv- & Maschinenfabrik at Winterthur, which gave complete satisfaction.

Another result of the trial trips is the building of longer carriages, which, owing to their length, do not vibrate so much, and which, with high speed, have considerably less air resistance, a factor which is apparently not only valuable to aeroplanes. These carriages are 18 ½ metres long and have trussed sides, the iron frame of which is constructed like a bridge.

They are therefore iron carriages (per unit of weight stronger than ordinary constructions); timber is only used for fastening the wooden partitions, which are preferable to steel ones in the tropics.

The AB carriages have 14 seats first class (A) and 24 seats second class (B). The C carriages offer 70 third-class seats athwart, whilst in the dining cars (F) 26 passengers can be accommodated.

Each of the carriages has an electric installation, run on one of the axles, which gives sufficient current for lamps and fans.

The carriages, ten of which will soon be ready, are being built at the well-known Beynes Works at Haarlem (Holland). The interior of the dining cars has been designed by the artist Willem Penaat.

Another 40 or 50 of these long carriages will be built in the Dutch East Indies.

The Railway Workshops at Manggarai. These are (contrary to the old workshops which were built on the transversal system) constructed on the American longitudinal system, which means that extension of various departments can simply be made by elongating the building.

The entrance and exit rails have been laid in the middle with additional rails on each side, on which the locomotives or carriages can be placed by means of electrically driven cranes. These are constructed in such a way that a locomotive can not only be lifted from one rail to another but also over another locomotive and thence transported. Two cranes of 40 and two of 5 tons each are used, whilst another 5-ton crane transports heavy spare parts.

There are two buildings where cars can be lifted with the aid of four electrical cranes of 7.5 tons each and another building where the heaviest carriages can be transported by means of four 20-ton cranes.

A quick transport between the different departments and the stores is in the interest of an economical exploitation. In front of the buildings there is a 40-ton movable derrick. Further rails cross all the buildings whilst turntables are constructed on some of the crossings.

Many other devices are constructed in order to ensure quick and economic transport, as electro-motors, water-tower (which, by the way, is the highest in the Dutch East Indies), electrical installations etc., but

the main feature is the close connection which exists between the longitudinal system and the transport facilities.

With these new workshops, although not yet complete and fully equipped, the advantages of the longitudinal system over the transversal system are quite apparent.

According to a Government publication on " Information regarding some subjects of general interest " the Government program for extension and improvement of the railroad system includes : »

Java.—Constructing double track on sections with busy traffic; improvement, extension, or reconstruction of important junctions, new lines to a total length of about 621 miles.

Sumatra.—New lines to a total length of about 1.678 miles.

Celebes.—New lines to a total length of about 683 miles.

Borneo.—Total new lines about 808 miles.

Bali, Lombok, Banka and Billiton appear on the program for new lines to a total length of 311 miles.

II.

ROADS.

Apart from the construction of rail- and tram-way lines there are important plans for road construction. The projects on the Island of Java comprise the construction and improvement of two main roads through the whole of the Island with five branch roads. At Sumatra 54 roads will be constructed to a total length of 2.859 miles.

It is evident that the energetic action taken by the Government will greatly assist a quicker development of estates and industries in the outlying districts of this vast group of islands. The above-mentioned Government publication states "The policy of the Railway as well as the Public Works Departments must essentially be a far-seeing one" and, further, " The construction of rails and roads must not be postponed till the necessity arises; it should be done wherever possibilities of an economical development are but waiting for a stimulus to be transformed into a process of real industrial activity."

NORWAY.

I.

RAILWAYS.

A.—Length of Railways.

Lines in regular operation	Length in kilometres		
	1/7/1914	1/7/1919	1/2/1921
State Railways.			
Gauge of the Rails $1^{m}435$	1,719	1,788	1,940
— — $1^{m}067$	992	995	910
Total State Lines...	2,711	2,785 (1)	2,850 (2)
Private Railways.			
Gauge of the Rails $1^{m}435$	222	222	192
— — $1^{m}067$	110	135	135
— — $1^{m}0$.....	26	26	26
— — $0^{m}75$.....	96	83	83
Total of private lines...	454	466	436
General total of Norwegian lines..	3,165	3,249	3,286
With Double Track.....	20	33	33

1) In addition 35 km. in course of construction were operated at the company's expense.

2) In addition 72 km. in course of construction were operated at the company's expense.

Among private railways the *Main Railway* (Hovedbane), 68 km. long, occupies a special position. It is, in part, under the same administration as the State Railways.

Probable alterations in the System in the Near Future.

A line of 158 km., with a gauge of 1 m. 435, will probably be in regular operation in 1921; the company will then no longer be financially responsible for the operations mentioned in the notes to the table. A section of the line will be reconstructed in order to change the gauge from 1 m. 067 to 1 m. 435.

B.—Main Lines.

July 1st, 1914.

1. Christiania–Moss–Kornsjo–Frontier, 170 km. in length,, (1 m. 435 gauge. Inter-Scandinavian line, with direct connection at the frontier with the private Swedish Dalsland Railway.
2. Christiania–Lilleström (double track)–Kongsvinger–Frontier (single track) 136 km., 1 m. 435 gauge. Inter-Scandinavian line, with direct connection at the frontier with the Swedish State Railway.
3. Christiania–Lilleström–(same track as 2)–Hamar–Elverum–Stören–Trondhjem, 561 km., 1 m. 435 gauge as far as Hamar; 126 km. from Christiania and afterwards a gauge of 1 m. 067.
4. Trondhjem–Moraker–Frontier, 102 km. 1 m. 435 gauge, Inter-Scandinavian line; direct connection at the frontier with the Swedish State Railway.
5. Christiania–Lilleström–Hamar (same track as 3)–Dombaas, 345 km., gauge 1 m. 435.
6. Christiania–Roa–Eina–Fagernaes, 210 km., 1. m 435 gauge.
7. Christiania–Roa–(same track as 6)–Honefes–Bergen, 492 km., 1 m. 435 gauge.
8. & 9. Drammen–Hokksund (same track as 8)–Dandsfjord, 89 km., 1 m. 435 gauge.
10. Christiania–Drammen (same track as 9)–Larvik–Brevik– 202 km., and Skien 204 km., 1 m. 067 gauge.
11. Narvik–Frontier 39 km., 1 m. 435 gauge. Inter-Scandinavian line; direct connection with the Swedish State Railway.

July 1st, 1919.

The same as on July 1st, 1914; but the following line was also provisionally in operation: Notodden–Hjuksebo–Skien–Borgestad, with a length of 60 km., and a gauge of 1 m. 435.

February 1st, 1921.

See alteration on July 1st, 1919, and Railway No. 8.—The line from Christiania to Drammen was reconstructed in order to exchange the narrow 1 m. 067 gauge to the standard gauge of 1 m. 435 ; a line was put into operation between Kongsberg–Hjuksebo on the Notodden–Hjuksebo–Skien–Borgestad line, so that a continuous line was established from Christiania–Drammen–Kokksund–Kongsberg–Hjuksebo–Skien to Borgestad, 186 km.; with 1 m. 435 gauge.

Prospects for the Immediate Future.

See Railways No. 3 and 5.—In 1921 the line between Storen on line 3 and Dombaas on line 5 (158 km. in length, 1 m. 435 gauge) will probably be put into operation. Through traffic will thus be possible between Christiania and Trondhjem through Hamar–Dombaas–Storen on 1 m. 435 gauge.

See alteration on February 1st, 1921, and Railway No. 8.—The line No. 8 between Borgestand and Brevik has been reconstructed in order to change the 1 m. 067 narrow gauge to the 1 m. 435 gauge and will probably be available for traffic of that gauge. This will provide a through route, with 1 m. 435 gauge, between Christiania–Brevik through Kokksund–Kongsberg–Skien.

C.—Tracks, Bridges and Viaducts on the State Railways.

Upkeep.

The tracks, bridges and viaducts of the State Railways have been regularly kept in order both during and after the war.

Maximum Wheel Pressure Permitted.

Information on this subject can be found in "Radstandverzeichnis", The present pressure is indicated in the 1918 edition.

Prospects for the Near Future.

The line Christiania–Moss–Kornsje–Frontier (line No. 1) will have to be adapted within five years to the traffic of vehicles with a maximum wheel pressure of 10 tons.

D.—Rolling-stock of the State Railways.

Information concerning the quantity of rolling-stock of the State Railways, the types in use, etc., can be found in the annual official railway statistics.

In recent years the rolling-stock was not sufficient to meet the requirements of the traffic, and the Norwegian Railways have continually had to borrow rolling-stock, both locomotives and trucks, from abroad.

The rolling-stock of the State Railway has been kept in normal repair both before, during and since the war, so that, generally speaking, the percentage of material under repair does not exceed that of normal times.

E.—Traffic on the State Railways.

1. *Movement of Trains.*

Number of ordinary trains.	1/5/1914	1/6/1919	1/2/1921
Passenger trains, daily	329	291	266
— working days only	114	124	140
— Saturdays & holidays.....	92	77	48
Total passenger trains ...	535	492	454
Goods trains, daily	13	14	15
— working days only..	99	103	101
Total goods trains ...	112	117	116
Total number of trains.....	647	609	570

Number of trains in circulation per kilometre during the following financial years:

	Length worked.
From 1st July 1913 to 30th June 1914.....	4,155
— 1918 — 1919.....	3,712
— 1919 — 1920.....	4,167

2. *Number of Passengers.*

Month or year	Number of passengers		Number of passengers out of the total who travelled with monthly season tickets.
	Total number	Increase + decrease —	
		%	
July 1914 about	2,130,935		
— 1918 —	2,552,985	+ 19.8	
— 1919 —	2,680,775	+ 5.0	
August 1914 —	1,827,097		
— 1918 —	2,674,122	+ 46.4	
— 1919 —	2,745,550	+ 2.7	
1/7/1913 — 30/6/1914	16,202,443		4,131,800
1/7/1918 — 30/6/1919	25,718,307	56.7	8,461,590
1/7/1919 — 30/6/1920	25,940,700	+ 0.9	8,449,880

The increase in the number of passengers was chiefly confined to short-distance journeys and consisted in an equal proposition of travellers holding season tickets and of travellers using ordinary tickets.

3. *Goods Carried.*

Month or year.	Total no. of tons of goods by fast and slow trains.	Increase + decrease —.
		Per cent.
July 1914 about	423,388	
— 1918 —	411.710	+ 2,8
— 1919 —	356,666	+ 13,4
August 1914 —	400,320	
— 1918 —	425,799	+ 6,4
— 1919 —	408,326	+ 4,1
1/7 1913 — 30/6 1914 about..	6,559,230	
1/7 1918 — 30/6 1919 — ..	5,295,532	+ 19,3
1/7 1919 — 30/6 1920 — ..	5,160,300	+ 2,6

The increase ur falling off in the quantity of goods is principally due to variations in the transport of ore coming from Sweden and being carried by the Norwegian Railway of Got (Ofetbauen) to Narvik.

F.—State Railway Tariffs.

1. *Prices of Tickets (Scale of Charges for July 1914).*

Ticket for Single journey.	Per Kilometre.					
	Slow Trains.			Express Trains.		
	1st Class.	2nd Class.	3rd Class.	1st Class.	2nd Class.	3rd Class.
	Ore.	Ore.	Ore.	Ore.	Ore.	Ore.
From 1 to 50 km....	9,-	5,-	3,-	11,4	6,2	3,8
» 51 » 150 »	8,1	4,6	2,7	10,5	5,8	3,5
» 151 » 300 »	7,2	4,1	2,4	9,6	5,4	3,2
» 301 » 400 »	6,6	3,8	2,2	7,8	4,4	2,6
Above 400[1] km.....	4,8	2,7	1,6	6,0	3,4	2,0

[1] Valid from the 1st July, 1916; the previous tariff rates were a little lower for distances of more than 400 km.

Increases since July 1914.

The following provisional increases must be added to the above-mentioned rates:

	1st & 2nd class.	3rd class.
From 12th April 1917	20 %	10 %
» 1st November 1917	80 %	60 %
» 15th July 1919	100 %	75 %
» 1st February 1920	150 %[1]	125 %
» 1st September 1920	190 %[1]	140 %

2. *Goods Rates.—Increases.*

On the 25th May, 1915, the scales of charges for goods transport then in use were increased from 5-5 ore per 100 kilometres.

On the 1st September, 1916, a new scale was put into force, with a view to increasing the revenues of the railways; at the same time an additional 20 % increase was added to the new rates for goods carried by slow or fast trains, milk excepted.

In accordance with subsequent decisions, the provisional increase of transport rates to be added to the scale of 1st September, 1916, was fixed as follows:

Date of coming into force.	Milk.	Certain other food-stuffs.	Forage.	Manure and Fuel.	Other goods by slow or fast train.	Live-stock.
	P. cent.	P. cent.	P. cent.	P. cent.	P. cent.	P. cent.
1/5 1917....	—	20	20	20	30	—
1/11 1917....	50	70	70	70	100	50
21/7 1919....	80	100	100	100	120	100
1/2 1920....	100	130	130	130	160	130
1/7 1920....	130	—	—	—	—	—
1/9 1920....	160	160	160	160	200	160

[1] This only applies to the second class; the increase on the first class was more than double that on the second class. At the present time a scheme is under consideration for altering the scales, so as to obtain more revenue from passenger traffic.

A new scale of transport charges is under consideration with a view to adjusting the rates to the present value of the goods and to obtaining higher revenues from goods traffic.

G.—Consumption of Fuel on the State Railways.

Date	Probable annual consumption in tons.	Actual cost of stocks per ton.	Prices paid for coal imported in the preceding 12 months per ton.
1/8/1914	About 160,000	About Kr. 20	About Kr. 20.
1/11/1918	» 225,000	» » 140	From about 90 to 210 Kr.
1/1/1921	» 230,000	» » 150	» » 170 to 236 »

In 1919 and in 1920 respectively the State Railways imported from America 20,000 and about 137,000 tons. In addition to these quantities the State Railways obtained supplies purchased in England.

H.—Economic Situation of the State Railways.

1. *Receipts and Expenditure during the years 1913-1920.*

Financial Year.	Receipts.	Expenditure.	Profit + and Loss —
	Kr.	Kr.	Kr.
1/7/1913—30/6/1914	28,335,978,13	25,288,062,85	—3,047,915,28
1/7/1918—30/6/1919	79,589,006,88	85,033,655,65	+ 5,444,648,77
1/7/1919—30/6/1920	101,767,841,37	107,019,694,99	+ 5,251,853,62

To the expenses of the years 1918-1920 must be added the increases in wages, represented by the bonus for cost of living voted by the State. These increases amounted to:

For the year from 1/7/1918 to 30/6/1919 kr. 16,175,000.
For the year from 1/7/1919 to 30/6/1920 kr. 16,500,000.

2. *Budget (receipts and expenditure) for the years* 1920-1922.

The Budget for the years 1920-1921 and 1921-1922 contains the following items:

Financial Year.	Receipts.	Expenditure.	Profit + and loss —
	Kr.	Kr.	Kr.
1/7/1920—30/6/1921	117,663,000,—	115,756,600	+ 1,906,400,—
1/7/1921—30/6/1922	129,570,000,—	138,582,400 [1]	— 9,012,400,—

To the expenditure for the year 1920-1921 must be added the increases in wages represented by the bonus for increased cost of living voted by the State and estimated at kr. 16,000,000.

II.

MARITIME AND INLAND NAVIGATION.

Condition of Sea-ports.—The present condition of our sea-ports cannot be considered satisfactory. Owing to lack of quay space and quay equipment, cranes, hangars, bonding warehouses, and railway lines, traffic cannot be carried on sufficiently rapidly. At times our ports have been in a bad state of congestion, especially during the war. In spite of this state of affairs, the Norwegian ports, including those which do not possess modern equipment and which consequently do not appear in official statistics, have been able during this period to cope with a very considerable goods traffic.

All expenditure on construction in the commercial ports being defrayed directly from the port dues, and only very exceptionally with the assistance of the State or Commune, it is generally difficult to keep our ports equipped to meet modern requirements. On account of the strained economic situation and the considerable rise in prices during the last few years, this difficulty is now more acute than ever.

Nevertheless, during the years 1914-1920, kr. 1,350,000 were spent on port constructions, and in addition new constructions are shortly to be undertaken at a cost of kr. 2,800,000.

Canals are few in number and only of importance from the point of view of transport in the southern part of the country.

The Canal of Fredrikshald, provided with locks measuring 34 m. 5 in length, 6 m. 3 in width, and 1 m. 8 in depth, has dealt, during the years 1893-1914, with the following average amount of transport per year:

86,800 dozen tree trunks;
3,700 lock traffic (eclusages);

[1] For the year 1921-1922 the cost of living bonus amounting to Kr. 18,725,247 is included in the expenditure shown in the above table.

3,500 tons of wood pulp;
5,600 passengers.

During the year 1919:

9,600 dozen tree trunks;
3,300 lock traffic (eclusages);
4,550 tons of wood pulp.;
5,600 passengers.

The Bandak Canal, provided with locks of the following dimensions: 37 m. 75, × 7 m. and 2 m., dealt during the years 1893-1914 with the following average amount of transport:

43,500 dozen tree trunks;
2,150 tons of goods;
17,200 passengers.

Condition of the Mercantile Marine.—The following table shows the comparative strength of the Norwegian Mercantile Fleet for the years 1914-1920:—

Year.[1]	Number.	Registered gross tonnage.	Registered net tonnage.
1914	3,325	2,648,661	1,784,471
1915	3,397	2,736,300	1,829,335
1916	3,428	2,753,177	1,815,493
1917	3,417	2,058,515	1,341,309
1918	3,474	1,892,287	1,223,900
1919	3,665	2,057,416	1,315,892
1920	3,828	2,429,232	

The number of vessels sunk by torpedoes or mines amounted to 824, with a combined total tonnage of 1,237,192 tons gross. 1,180 men perished [2].

The discrepancies which appear to exist between the figures given in this table concerning our pre-war tonnage and those for the latter years of the war, during which a great number of ships were sunk by mines or torpedoes, are due to the fact that vessels under construction in the stocks are included in the tonnage statistics.

The floating tonnage, therefore, for those years was far from attaining the figures indicated in the above table.

[1] Extracted from Table I of *The Navigation of Norway*, **1914-1918**, and in accordance with the Register of the *Norwegian Mercantile Fleet* **1921**, Table I.

[2] *Navigation of Norway* for **1919**, Table II.

Maritime Traffic.—The volume of traffic in the ports of Norway during the years 1914-1919 will be seen from the subjoined table, Annex No. 1, which gives the official figures for incoming and outgoing goods traffic between foreign ports and the principal ports of Norway in 1914 to 1919, and also for the Port of Christiania in 1920.[1]

A summary of this traffic has also been drawn up for the towns in Norway for the period 1914-1919.

No statistics exist for the *transport of passengers by sea*, but to gain an idea of the amount of this transport it may be pointed out that on the line Bergen-Newcastle, during the years of the war, about 500,000 passengers were transported in each direction. Passenger traffic on the Norwegian line to North America (den Norske Amerikalinje) was also relatively more considerable during the war than in normal times.

The reason for this is to be found in the great numbers of nationals of the belligerent countries who were obliged either to choose the route via Norway, or to travel on neutral vessels.

The existing coasting-steamer service also underwent great changes during the war as regards the number of passengers carried. At one time the number of passengers was very large, in spite of the high prices of the tickets ; but this number afterwards fell considerably owing to the general economic situation.

Transport of Goods.—The table below gives the value of the commercial exchange between Norway and foreign countries during the years 1914-1918 :—

Year [2].	Value.		
	Imports.	Exports.	Total.
	Kr.	Kr.	Kr.
1914	567,277,000	410,022,000	977,299,000
1915	867,968,000	676,760,000	1,544,728,000
1916	1,353,665,000	988,333,000	2,341,998,000
1917	1,661,308,000	791,372,000	2,452,680,000
1918	1,252,564,000	755,055,000	2,007,619,000

Rates.—No statistics are available regarding the prices of tickets on steamships. However, the table given below, which indicates the prices of tickets on certain principal lines, gives an idea of the changes which have taken place during the last few years.

[1] From the *Navigation of Norway* (published by the Central Statistic Bureau) 1914-1919, Tables 12, 13, 14 and 15.

[2] *Norwegian Commerce*, Central Statistic Bureau, Table A, 1914-1918.

Lines.		Price in Kroner.			
		1914	1916	1920	1921
Bergen-Newcastle	I Class.	72,00	108,00	200,00	180,00
— —	III —	20,25	36,00	90,00	80,00
Christiansand-Fredriks-haven	I Class.	15,00	15,00	45,00	45,00
—	III —	10,00	10,00	30,00	30,00
Christiania-Copenhagen	I Class.	27,00	27,00	80,00	—
— —	II —	17,00	17,00	80,00	—
—	III —	10,00	10,00	20,00	—
Christiania-Christiansand	I Class.	15,00	19,50	46,80	46,00

The prices of tickets have been increased in the same proportion on other lines.

Freights.- In Norway, freights followed the fluctuations of the foreign market during the war as in normal times.

Tables 55, 56 and 57 of the *Statistical Annual* for 1919 give an idea of the state of affairs during the period 1914-1919 in the markets which particularly interest our country. As an example, we quote the following rates :—

Freight (Journey and nature of freight)	Freight in Kroner per ton				During the War
	1914	1915	1916	1917	
Freight (Coal):					
East of Great Britain to the ports of Eastern Norway:	7.54	15.22	32.40	176.10	up to kr. 300.00 (1)
Freight (Corn):					
North American States—Norway:	27.50	47.50	85.00	148.00	

(1) This high rate was due to war risks resulting from the fact that the vessels had to cross the blockaded zone.

Table 56.—This table gives in shillings and pence the average cost of freights during the years 1914-1919 between several important foreign ports, for example : Welsh Ports-Alexandria ; Welsh Ports-Genoa ; Welsh Ports-Le Havre ; Welsh Ports-Tyne-Barcelona ; Welsh Ports-New York-China ; Welsh Ports-La Plata-England, etc.

It also gives the minimum and maximum freights per month and for a fixed period of the same years, for the most important markets.

The following table gives the import of coal during the years 1913-1919 :

Year [1]	Coal (tons)
1913	2,276,808
1914	2,504,602
1915	2,758,507
1916	2,467,552
1917	1,059,465
1918	1,421,538
1919	1,547,886

It may be reckoned that about 25 % of these imports were used for shipping purposes. It should, however, be mentioned that the merchant fleet obtains most of its coal (bunker coal) in foreign ports and that this coal is not included in these statistics.

During the period 1914-1920 the average prices of coal per ton were the following :

1914	kr. 28.52
1915	kr. 43.95
1916	kr. 74.54
1917	kr. 94.34
1918	kr. 160.73
1919	kr. 129.32
1920	kr. 160.33

The economic conditions under which the shipping industry was carried on during the period in question (1914-1919) underwent several changes, but on the whole they must be considered very favourable.

In the second half of 1920, however, a reaction set in which has gradually reduced the shipping industry from the prosperity which it had attained in the previous period to a state of depression such as it has never known before.

The chief causes of this depresssion are the inordinate rise in the cost of repairs (reconstruction), the considerable losses suffered by a number of shipowners owing to the fact that they have had to cancel contracts for the building of new ships, for which several instalments had already been paid, and, finally, the greatly increased taxation.

[1] From the *Norwegian Official Journal of Prices*, No. III, 1920.

III.

TRANSPORT AND AIR TRANSPORT.

During the period 1914-1920 motor transport developed considerably throughout the country, both as regards the transport of persons as of goods.

The table given below contains a summary of the situation :—

In 1913	972	motor	vehicles	were	registered
In 1914	1,553	»	»	»	»
In 1915	2,033	»	»	»	»
In 1916	3,027	»	»	»	»
In 1917	4,430	»	»	»	»
In 1918	4,700	»	»	»	»
In 1919	7,639	»	»	»	»
In 1920	13,000	»	»	»	»

These figures are taken from the *Budget Tcheme for the Administration of Bridges and Roads* for the financial year 1921-1922 (Storting Proposal, No. 1, Principal Article I, Chapter 6, Sections 1-10). (Section.)

On pages 35-44 other information will also be found regarding motor transport—the number of licences granted, taxes, etc. Further, these pages also contain a summary of regular motor services, both for the whole country and for the various provinces, giving the number of services, number of passengers carried, price of tickets, subsidies granted by the Postal Service, etc.

Air Transport.—This traffic does not yet possess any practical importance for the country. Trial flights with a view to postal and passenger transport have, however, been carried out with good results.

List of Works from which the above information has been taken.

(1) *Norwegian Navtgation*, 1914-1918, Central Statistic Bureau.

(2) *Norwegian Commerce*, 1914-1916-1917-1918, Central Statistic Bureau.

(3) *Statistic Annual*, 1918, Central Statistic Bureau.

(4) *Regisser vf the Norwegian Merchant Fleet*, 1914-1918, Navigation Office.

(5) *Official Journal of Prices*, No. 111, 1920, Prices Controller's Office.

(6) *Storting Proposal*, No. 1, Principal Article X, Motor Traffic : Administration of Bridges and Roads.

ANNEX

Movement

Customs Office. (Ports.)	Year.	Arrival in Norway.					
		In Cargo.		In Ballast.		Total.	
		Number.	Tons.	Number.	Tons.	Number.	Tons.
Fredriksstad..	1914	297	65,142	311	101,492	608	172,634
Christiania....	—	1,938	1,391,862	301	427,523	2,239	1,819,385
Drammen.....	—	352	139,022	96	25,701	448	164,723
Skien.....	—	204	99,247	12	6,029	216	105,276
Christiansand.	—	564	209,861	85	25,400	649	235,261
Stavanger.....	—	281	105,026	30	13,033	311	118,059
Haugesund ..	—	128	42,630	294	74,445	422	117,075
Bergen.....	—	747	532,056	97	49,947	844	582,003
Christiansund.	—	62	42,192	26	14,795	88	56,987
Trondhjem....	—	440	297,249	34	33,649	474	330,898
Narvik.....	—	51	86,340	316	758,738	367	845,078
Fredriksstad..	1919	151	32,397	87	35,365	238	67,762
Christiania....	—	1,533	1,122,483	87	92,795	1,620	1,215,278
Drammen.....	—	218	67,689	48	12,472	266	80,161
Skien.....	—	61	32,812	24	8,026	85	40,838
Christiansand.	—	287	94,779	15	3,376	302	98,155
Stavanger.....	—	127	69,913	12	5,808	139	75,721
Haugesund ...	—	101	35,267	83	26,325	184	61,592
Bergen.....	—	637	499,007	43	20,246	680	519,253
Christiansund.	—	48	25,171	18	9,164	66	34,335
Trondhjem....	—	171	111,378	28	16,545	199	127,923
Narvik.....	—	35	30,534	86	155,377	121	185,911
Christiania....	1920	—	1,006,612	—	1,433,539	2,010	440,151
	1914	7,515	3,845,397	2,588	1,881,491	10,103	5,726,888
	1915	8,615	3,852,975	2,196	1,491,218	10,811	5,344,193
	1916	7,805	3,673,642	1,625	1,036,056	9,430	4,709,698
	1917	3,755	1,871,455	815	551,726	4,570	2,423,181
	1918	3,370	1,649,907	698	295,280	4,068	1,945,187
	1919	4,914	2,527,112	1,180	528,939	6,094	3,056,051

No. I.

of Shipping.

Departures from Norway.						Gross freightage from foreign shipping.
In Cargo.		In Ballast.		Total.		
Number.	Tons.	Number.	Tons.	Number.	Tons.	
677	274,526	100	25,368	777	299,894	
1,176	968,207	382	463,682	1,558	1,431,889	
419	189,410	118	61,029	537	250,439	
244	124,513	15	8,191	259	132,704	
532	188,158	84	38,733	616	226,891	
99	38,625	158	60,046	257	98,671	
309	78,702	217	72,968	526	151,670	
568	369,422	270	183,771	838	553,193	
150	69,118	21	17,841	171	86,959	
382	258,534	47	33,049	429	291,583	
380	862,309	16	18,626	396	880,935	
167	84,249	94	26,612	261	110,861	
742	688,086	457	294,549	1,199	982,635	
284	123,190	65	19,041	349	142,231	
95	39,515	11	7,697	106	47,212	
280	87,388	28	16,197	308	103,585	
78	59,161	47	32,750	125	91,911	
179	63,013	46	19,845	225	82,858	
343	247,097	161	181,547	504	428,644	
59	28,439	17	8,972	76	37,411	
215	115,650	34	26,947	249	142,597	
168	220,340	6	4,259	174	224,599	
—	341,700	—	1,120,570	1,211	1,435,270	
7,839	4,304,054	2,291	1,334,982	10,130	5,638,836	211,478,085
8,362	4,020,865	2,634	1,397,220	10,996	5,418,085	359,856,459
7,603	3,557,944	1,784	1,176,264	9,387	4,734,208	761,813,067
3,500	1,844,425	1,067	615,238	4,567	2,459,663	580,376,095
3,087	1,597,615	993	368,729	4,080	1,966,344	305,723,370
4,313	2,233,199	1,700	806,372	6,013	3,039,571	

ANNEX No. II.

Statement regarding the Regime of Ports in Norway.

The commercial ports in Norway are administered by a Board Port Administration (havnestyre) —composed of 6 to 8 members. Two of these — the mayor and the prefect of police — are *ex-officio* members. The others are appointed for a limited time by the Municipal Council.

As, however, it is considered that the administration of port concerns not only the town itself but also the whole country, many important questions are submitted for the decision of the competent Ministry, or even for that of the Government.

Copies of the minutes of meetings of the administrative bodies of each port and also copies of the accounts of the ports are forwarded to the Director-General of Ports, who also has the power to call a meeting of the Port Administration whenever he thinks fit.

The chief questions affecting the administration of ports are settled by law, which applies to all commercial ports.

The budget of a port is independent of the town in which the port is situated.

Port charges are fixed either by law or by a resolution of the Municipal Council, approved by the Government.

The taxes established by law are as follows:

1. *Loading and lighthouse dues*, of which the State takes the proceeds.
2. *A supplementary customs duty* of 1 to 2 %, levied on imports.
3. *Superintendence dues* (havnefogedpenge), calculated according to the capacity of the vessel.
4. *Tonnage dues*, calculated by various methods either on the net tonnage in the case of coast vessels or on the tonnage of the cargo in the case of vessels arriving from or departing for foreign countries.
5. *Mooring dues*, calculated on the capacity of the vessel.

The charges which the Municipal Council is authorised to levy are the following:

6. *Quay dues*, calculated in various ways in different towns, either on total tonnage or on the net tonnage of the vessel.
7. *Pilotage dues* in those ports in which pilotage is obligatory by royal decree.
8. *Ice dues*, levied in some ports during the winter months, calculated either on the tonnage of the vessels or on the quantity of goods.
9. *Duties imposed on goods*, calculated according to a scale approved by the Government, for the storage of goods on the quay or in sheds.
10. Finally, ports are authorised by royal decree to levy a special tax on goods transported across the quay in order to be loaded or unloaded.

As regards these charges, it must be noted that *no discrimination is made* according to the nationality of the vessel.

The rates are the same for everybody—there are only a few vessels engaged in the local coasting trade which enjoy the privilege of a reduction of harbour dues in certain ports.

The revenues of the port must, according to law, be utilised solely for the administration, upkeep and improvement of the port. The port budget is kept up almost exclusively by means of the above-mentioned rates. In special cases, the town agrees to defray part of the cost of the harbour works ; it is even more unusual for the State to render pecuniary assistance. Even the branch lines from the docks to the station are laid down and maintained at the expense of the port.

As the port revenues are comparatively small, whilst the cost of construction is, in the nature of things, very high, it is difficult to keep the Norwegian ports in a condition corresponding to present needs and to the development of communications. Nevertheless, great efforts are made to satisfy all requirements.

What is most needed in the Norwegian ports is plant in the shape of railway lines, cranes, hangars and warehouses. It has become all the more necessary to supply this deficiency of plant as the cost of loading and unloading has increased out of all proportion during the last few years.

The depth of water in the ports varies from 5 to 10 metres over the sills at ordinary low tide. All the principal ports have a depth of water sufficient to accommodate the largest vessels.

The administration of all the ports except town-ports is in the hands of the master-pilots ; the direction, as a matter of fact, is carried out by the Government department concerned, represented by the General Ports Administration. The Director-General of Ports is also responsible for the good condition of all docks used by public traffic.

Summary.—Norway endeavours to keep port dues as low as possible, and no difference is made, in calculating these dues, between the Norwegian and foreign flags.

The amount of the port dues is fixed by law or under the control of the Government. It is therefore impossible to bind Norway to fixed tariffs. Any question relating thereto must be dealt with either by Parliament or by the Government.

The use of Norwegian ports is absolutely free, on a footing of perfect equality for all.

PANAMA.

By reason of its geographical position, the Republic of Panama should be of exceptional importance as regards international transport, since it occupies the Isthmus of Panama, which unites the two parts of the American Continent, and has for centuries attracted the attention of the whole world. It was realised that if the isthmus were pierced it would become the shortest line of communication between the two oceans. This has now been accomplished; the great inter-oceanic route has been opened, thanks to the intelligent and energetic efforts and generous resources of the United States of North America, and thanks also to the sacrifices made by the little Republic, which was ready to give up a part of its territory for the good of humanity, *pro mundi beneficio*, in the words of her national motto.

But since the Panama Canal belongs to the United States, as also does the Trans-Isthmian Railway which runs alongside the Canal, and since the jurisdiction over this strip of territory was ceded to the United States by the Republic of Panama under the terms of the Treaty of November 18th, 1903, it follows that the importance of its situation has very much diminished from an international point of view, as most international traffic now passes through the terminal ports of the Canal, Cristobal on the Atlantic, and Balboa on the Pacific.

The Republic is, however, in a particularly favourable position as regards lines of navigation, since vessels of more than 40 companies call at the Canal ports, the quays of which are only a very short distance from the towns of Panama and Colon.

The Panama authorities have free access to these ports under the terms of the above-mentioned Treaty, in order to inspect the transit of passengers and goods coming into the Republic.

A few shipping lines also call at the port of Bocas del Toro on the Atlantic, which is within the territory and under the jurisdiction of the Republic of Panama.

There is no national steamship or sailing line plying regularly along the Canal ; nor is there a sufficiently important trade between the Atlantic and the Pacific coasts to justify such a service, as passengers and goods are carried on foreign vessels or by rail.

There are in the Isthmus two railways-lines open to the public; the first, which joins Panama to Colon, and which is situated almost entirely within the zone of the Canal, belongs, as already mentioned, to the United States, who acquired the Panama Railroad Company at the time when the rights of the French Canal Company were transferred in 1903 ; the second, a local line in the province of Chiriqui, runs between the port of Pedregal and Boquete, and belongs to the Government of Panama. This line has been working since 1914.

The first line, which has a length of 80 km., serves for the transport of passengers and goods between Panama and Colon, and also between the two Canal ports. Panama merchants have frequently complained of the high rates prevailing on this line, and the Panama Government is in negotiation with the Government of the United States with a view to obtaining a reduction in these rates, as well as in those of the ships of the Panama Railroad Company, which are also owned by the United States and ply between New York and Cristobal.

The second line is a narrow-gauge railway, which, starting from the port of Pedregal, passes through David, the capital of the province of Chiriqui, and goes as far as Boquete (60 km.) with branch lines to Potrerillos (13 km.) and to La Concepcion (31 km.). This line serves chiefly for the transport of the produce of this rich agricultural district, such as tobacco, coffee, cocoa, etc.

The following are the detailed import and export figures for the year 1916:

IMPORTS.

	Tons.
United States of North America	93,227.14
China	6,030,32
Great Britain	3,228.67
Chile	1,624.39
Spain	348.91
France	377.75
Colombia	285.57
British West Indies	332.19
Japan	228.15
Sweden	253.07
Salvador	757.65
The Netherlands and Possessions	297.67
Cuba	92.68
Italy	73.11
Costa Rica	25.67
Norway	4.82
Switzerland	1.89
Total	107,189.65

EXPORTS.

	Tons.
United States of North America	136,553.51
Great Britain	110.88
Canal Zone	623.13
Italy	150.44
Spain	0.42
Total	137,438.39

PARAGUAY.

Situated in the centre of South America, and therefore far removed from the sea-coast, Paraguay would seem, as a result of her position, to be classed amongst those countries which are deprived of the great advantage arising from unhindered contact with the world — one of the vital conditions of a prosperous existence and rapid progress. The isolation of Paraguay, however, is more apparent than real, and the disadvantages of her situation are only relative.

She is, in fact, brought within reach of world-commerce by the means which Nature has generously placed at her disposal. These means are, on the one hand, the numerous rivers flowing through her territory, many of which are navigable, or would be so if certain easily practicable works were carried out ; and on the other hand, the two famous, noble and magnificent arteries which convey her produce to the markets of the world, and which bring her in exchange those articles of foreign manufacture which she requires for her own use — the rivers Parana and Paraguay, which flow through her entire length, one forming her eastern and southern border, and the other dividing her into two nearly equal parts along her whole length from north to south.

Access to the sea is obtained on the one side through the Argentine and Uruguay, and on the other through Brazil; these countries, like Paraguay herself, have proclaimed as an indisputable principle free navigation for international traffic on these waterways, and have always been ready to throw open their own rivers for this purpose. Paraguay thus enjoys all possible facilities, including the great advantages which her neighbours and friends have so generously accorded her for her transit.

It must with regret be stated that hitherto Paraguay has been amongst those South American countries whose railway system is the least developed. The country has, however, made great efforts in this direction, and has at length, and in face of enormous difficulties, connected her main line with the extensive and prosperous lines of the Argentine ; she thus obtains through communication with the great metropolis of La Plata, Buenos Ayres, that great centre of civilisation and progress which is a harbour of considerable importance and, at the same time, the principal centre of consumption for the produce of her soil.

Paraguay possesses other lines of a more local character. One of the most important of these is at present in course of construction by a commercial company ; 40 kilometres have already been opened for public use. This line leaves the town of Concepcion, passes through the villages of Belen and Horqueta, and is to reach by this route the frontier of Brazil.

The other lines, which, taken together, also amount to a considerable number of kilometres, have been built by large timber and tannin concerns for the purpose of conveying their raw materials to the places where they are to be manufactured, or to the banks of waterways in order to be shipped abroad.

The progress which was manifest in every sphere of national life before the world-catastrophe of 1914 was particularly marked in the rapid advance made in routes of communication and transport, particularly as regards railways, which were rightly considered to be the barometers of national progress. Thus, a beginning had been made with the construction of a line of exceptional importance which was to cross Paraguay from west to east. This line was to have ended on the Paraguayan side opposite the famous Iguazea cataracts on the banks of the Parana ; here it was to join a Brazilian railway, by means of which it would have reached the well-known port of San Francisco on the Atlantic coast. Of this line scarcely thirty kilometres have been built and opened for traffic.

Another railway of no less importance, the construction of which was conceded to a large firm, was to join, above the Guaira — one of the most wonderful cataracts in existence — a railway belonging to the neighbouring country which, starting from Rio de Janeiro, the fair and noble capital of the Republic of Brazil, would have ended at the same spot.

As regards her land-routes also, Paraguay relies upon the friendship and spirit of concord which unite her with her neighbours and the good-will and broad spirit of international liberalism for which she can find nothing but praise.

PERSIA.

During the meeting of March 14th, 1921, the Persian Delegate, addressing the Conference, had the honour to point out the importance of the geographical situation of his country from the point of view of international communications. He emphasised the important part played by Persia in the past, and the services which it was called upon and was determined to render to trade between the West and the East in the future.

The Persian Representative also made a brief reference to the trials undergone by his country before and during the great war ; he enumerated some of the obstacles due to foreign influences, which have hitherto paralysed Persia and have deprived her of those modern means of transport which are indispensable for her development.

In fact, Persia lacks railways, and at the present moment transport unfortunately has to be carried on for the most part by caravan (on camel and mule back) and by carts. It is, therefore, not easy to give positive replies to the questionnaire submitted by the Secretariat of the Conference, and one chapter of this statement will necessarily deal with roads.

Nevertheless, this vast and rich country, with a surface area of 1,647,000 km. square and a population of 10,000,000 inhabitants, has been endowed by Nature with the conditions necessary to assure her restoration and prosperity — a temperate climate, direct access to the sea, both to the North and the South, a fertile soil, a hard-working trading population, iron and coal mines, and an abundance of petroleum.

Therefore, the new Persian Government, anxious above all to restore the country to prosperity, has drawn up a whole programme of reforms including in particular the development of means of transport and reforms, of a financial and economic nature. It intends to encourage, as far as possible, the construction of railways and ports; the establishment of motor transport services, the exploitation of mines, irrigation works, etc.

Experts from all countries may take an active part in this reconstruction, and foreign capital may be employed.

The intended connection of the future Persian railway system, on the one side, via Bagdad, with the lines which reach the Mediterranean, and on the other side, Askabad, with the Trans-Caspian railways and the Trans-Siberian and Chinese railway systems, will bring Persia nearer to Europe and will, at one stroke, open the great markets of Central Asia and

the Far East to the industries of the West, and will supply the latter with an abundance of the raw materials which they need.

The future Paris-Pekin Railway will cross Persia, and also the line connecting British India with Russia.

Persia has treaties of commerce, navigation and friendship with 23 foreign countries. The Persian Government desires to conclude fresh Treaties and to submit those which already exist to revision, in accordance with the principles laid down in the present Conference and also with respect for the complete independence of Persia (political, economic and juridical).

We desire above all the free transit of goods and of the products of all foreign countries to our markets by any and every route, and particularly by those which are as yet closed to us, that is, by the railways of the Caucasus, Batum-Tiflis-Baku and Batum-Tiflis-Djulfa.

This route was in use for foreign commerce about 40 years, but in 1880 the Tsar prohibited transit via Batum, and thus arrested the development and prosperity of the whole of Northern Persia.

Thus our report will be divided into five parts : (1) Railways ; (2) Roads; (3) Maritime Navigation ; (4) River Navigation ; (5) Comparative Table of Foreign Trade for the years 1913-1919.

I.

RAILWAYS.

Persia is extremely poor in railways, although for the last 50 years numerous schemes have been formed and elaborated.

The policy of the former Russian regime was in general opposed to the development of neighbouring countries, and obligations were extorted on several occasions from the Persian Government for periods of 20 years, compelling it to refrain from granting concessions and constructing railways.

Persia has thus been deprived of the essential means of progress and regeneration.

The only existing railways are the following :

(a) Djulfa Railway, on the Caucasian frontier, running to Tabriz, with a branch from Sophian to Sharifkhaneh, on the borders of Lake Urmia, and a navigation service on Lake Urmia.

This railway, the total length of which is 192 km., is at present the only railway of any importance. The concession for this line was granted by the Persian Government in 1913 to the Russian Discount Banking Company of Persia.

It was opened in 1916, but at first was only used to supply the Russian Army, which was fighting against the Turks on Persian territory. Russia prevented the import of provisions and other products required for the needs of Persia. At the time of the Russian revolution the Bolshevik soldiers, in their retreat, removed nearly all the waggons and locomotives. There only remained 10 goods trucks out of 276, 3 locomotives out of 22, and 2 passenger coaches out of 20. In order to avoid bankruptcy, the Russian Company had to loan to Persia 5,000,000 krans, and the rolling stock was held as a guarantee. The working of this railway, which was thus suspended, has now been restored with the available rolling stock. When peace has been restored in Russia, and when regular traffic across the Caucasus is resumed, this line, which connects Batum and Tiflis with one of the most important towns in Persia (Tabriz : 210,000 inhabitants), will be called upon to render numerous services to trade and may attain great importance. The fuel used on this line is petrol, as is the case also on the Caucasus railways. The gauge is the same as in Russia.

The navigation service of barges and tugs was in operation for commercial purposes on Lake Urmia. It was suspended during the war, but will probably soon be revived. All vessels are worked by petrol motors.

The branch of the railway reaches the shore of the Lake at Sharif-Khaneh. The railway company has already constructed a port there, with a large wharf and mole. This port will be the centre for all goods destined for, or originating from, the regions of Selmas (North-West of the Lake), Urmia (West of the Lake), Kurdistan (South of the Lake), Maragha (South-East of the Lake).

These regions will be served by the respective ports of Khanlakhté, Ghermkhaneh, Sulduz and Danalu. At all these places the company had begun to construct wharves and installation for the harbourage of vessels and the loading and unloading of goods.

Works on the new railway between Baku and Djulfa, which was to skirt the Arax, have been suspended owing to political disturbances. They will probably not be re- started for a long time.

(b) Bushire-Borazdjan Railway.

A railway, 50 km. in length, has recently been built between Bushire and Borazdjan.

This line has been open for the conveyance of passengers since April 1st, 1919. The fares are as follows :

Ordinary train leaving Bushire to Ahmadi and vice-versa : 3 krans ; from Ahmadi to Borazdjan and vice-versa : 2 krans.

Special commercial train twice a week, on Mondays and Fridays, to Bushire and Ahmadi and vice-versa: 9 krans; from Ahmadi to Borazdjan and vice-versa : 6 krans.

(The average value of the kran in 1919 was 1 franc.)

This line will be open shortly for the transport of goods also.

(c) Piri-Bazar-Resht Railway.

A transport service by steamships and sailing vessels for passengers and goods has been established between Enzeli (a Persian port on the Caspian sea) and Piri-Bazar as far as Resht. The fare between Enzeli and Resht is 8 to 10 krans per person. Goods cost one kran per pood. The length of the railway is about 12 km.

(d) Shahtakhté-Maku-Bayazid Railway.

(Connecting the North-West frontier of Persia with the North-East frontier of Turkey.)

This line, which is about 100 km. in length, is not at present in operation. Like the line from Djulfa to Tabriz, it was used for the military needs of Russia during the war.

(e) Teheran-Shab-Abdul-Azim Railways.

The oldest Persian railway in operation is that which connects Teheran to Shab-Abdul-Azim, the length of which is 9 km. This line was operated by the "Société Anonyme Belge de Chemins de Fer et Tramways en Perse". It carries on an average 690,000 passengers per year. The total receipt are 50,000 tomans and the expenses amount to 26,000 tomans. (In 1919 a toman was worth about 10 francs).

(f) There also exists between Mahmud-Abad (on the Caspian Sea) and the iron mines of Amol, a railway 16 km. in length, but it was suspended a long time ago.

It might be of interest to indicate the most important schemes for projected railways which have been, or are at present, under consideration and the international lines which end at the Persian frontier :

1. On February 9th, 1913, the Persian Government authorised the Persian Railways Syndicate, Ltd., to investigate the possibilities of constructing a railway connecting Mohammerah or Khur-Mussa (on the Persian Gulf) with Khoremabad. The preliminary survey is being made.

(2) The extension of the Djulfa-Tabriz railway to Teheran is under consideration. This line would connect the capital of Persia with Batum (on the Black Sea).

(3) The Persian Government is considering schemes for railways connecting the capital with the Trans-Caspian Railway system (Krasmovodsk-Askabad-Merv and the Afghan frontier, which skirts the North-Eastern frontier of Persia), and also with the Bagdad railway, which at present ends at Kuretu, on the Western frontier of Persia.

(4) It should also be noted that the Indian railway from Quetta to Nushki touches the Persian frontier at Duzdab (Seistan).

(5) It will be remembered that in 1912 an important scheme for a Trans-Persian railway was conceived by an international company. The headquarters of this company, the capital of which amounted to 2,500,000 francs, was at Paris. It proposed to establish a railway system which, crossing Persia, would connect the Russian railways with the railways of British India.

II.

ROADS.

There are twenty-eight main roads in use for traffic with foreign countries and between the various regions of the interior. Of these, some are roads maintained by the concessionaries, who have the right of levying certain tolls ; others are natural roads either wholly or partially fit for vehicular traffic ; and finally there are others only suitable for caravans.

A. The total length of the roads suitable for vehicular traffic is 1,598 kilometres. The principal ones are those linking the important centres of the interior to the Persian frontiers. These roads run :

(1) From Enzeli (Persian port on the Caspian Sea) to Teheran (350,000 inhabitants) via Resht and Kazvin. This road, which is 382 kilometres in length, connects Russia with the capital and principal towns of Central Persia. Transport on this road is carried on by horse-drawn vehicles, motor-cars, and motor-lorries.

Since the construction at Enzeli of a double pier allowing vessels to enter the inner harbour and to berth directly at the customs wharf except in very stormy weather, the traffic on this road would increase but for the state of war existing in the Caucasus.

At the present time the following dues are collected :— 1) on each vessel entering a charge of 10 chais per net legal ton of burden ; 2) a charge of two chais per pood of goods loaded or unloaded ; 3) a charge for pilotage of 3 chais per net legal ton. (The chais was worth about 5 centimes in 1919.)

The company holding the concession levies the following passage dues :—

	loaded	unloaded
(a) From Enzeli to Resht; Per 4-horse vehicle	20 krans	10 krans
Per 2-horse vehicle	5 »	2.50 k.
Per camel, horse or mule	1 »	0.50 k.
Per motor car for 4 persons and under .	20 »	
Per motor car for more than 4 persons	40 »	

(b) From Resht to Teheran :

Per 4-horse vehicle	59 k. 10 ch.	29 k. 15 ch.
Per 2-horse vehicle	23 k. 18 ch.	14 k. 9 ch.
Per 4-horse waggon	70 k. 11 ch.	35 k. 6 ch.
Per horse, mule, camel or donkey . . .	4 k. 14 ch.	2 k. 7 ch.
Per motor car for 4 persons or under .	120 krans.	
Per motor car for more than 4 persons	240 krans.	

Passengers :

From Enzeli to Resht, there is no regular posting service; passengers always find plenty of small two-seated carriages, at a charge of 8 to 10 tomans, which cover the distance in 3 hours, or motor cars which charge 4 tomans per seat. Local boats run a regular service between Enzeli and Piri-Bazar, the passengers then going on to Resht rail ; the price of the journey is from 8-10 krans.

From Resht to Teheran, a relay posting service which formerly used to allow of the journey being accomplished in 2 or 3 days, has practically ceased to exist. The prices charged have been extremely high and variable, and the duration of the journey longer than before the war.

Goods Transport :

(a) From Enzeli to Resht.

Average duration : *(a)* by road, 1 day.

As the " Persian Transport Bureau " has discontinued its services, there is no longer any regular means of transport on this road, and private arrangements have to be made with individual carrie's.

(a) by water, as far as Piri-Bazar and by land from Piri-Bazar to Resht, from 2 to 3 days. This route is the most economical and almost the only one used. The price varies according to the seasons and the amount of goods to be transported ; the average price charged is one kran per pood.

The following passenger dues are levied on the route from Piri-Bazar to Resht :—

Per two-horse vehicle	1 Kran 70
Per one-horse vehicle	0 » 85
Per pack horse	0 » 30

(b) From Resht to Teheran.

Average duration : by cart, 15 days ; by caravan, 20 days.

Owing to present conditions it is impossible to fix an average price for the transport of goods, which reached 80 tomans per kharvar of 100 Tauris batmans ; the posting service charges 6 tomans per person for the journey by gari (waggon).

The posting service carried passengers during part of the year in motor-lorries, at a price of 35 tomans per person ; a few private indivi-

duals have also transported passengers by means of touring-cars at various prices, but these services were quite unorganised.

(3) *From Djulfa to Tabriz.*

This road of about 120 km. has lost its former importance, owing to the opening of the Djulfa-Tabriz Railway. The railway, in fact, has replaced the road ; both were constructed by the same company.

At present the railway is working very irregularly owing to the disturbances which are continually occurring in the portion of the Caucasus traversed by the Tiflis-Djulfa Railway, of which the Djulfa-Tabriz line is the continuation.

(4) *From Astara (Port on the Caspian Sea) to Tabriz, the great commercial centre of North Persia, via Ardebil.*

Astara serves principally as a centre for goods proceeding to Ardebil and Tabriz.

There is a road of about 80 km. running from Astara to Ardebil, built and operated by a Persian limited liability company. This road is suitable for vehicular traffic throughout its length at all times of the year. The average cost of horse transport is 25 tomans for a three-seated carriage drawn by 3 horses, the journey taking 15 hours. The company levy a passage-due of 7 chais per loaded donkey and of 1 ½ krans per pack camel, horse or mule. (These charges are reduced by half in the case of unloaded animals.) In addition, a charge of one kran is made per ox, cow, etc., and 5 chais per sheep. The average length of the journey by caravan is two days, and the price for the transport of goods amounts to 20 krans per mule load of ten poods.

From Ardebil to Tabriz goods are carried on a track unsuitable for vehicular traffic. The whole journey from Astara to Tabriz can be covered in 9 days ; the cost varies.

Goods are sent from Astara to Ardebil by camels, mules or donkeys and from there to Tabriz by camels.

(5) *From Askabad, principal town of Transcaspian Russia on the railway from Turkestan to Meshed (70,000 inhabitants), capital of the Persian province of Khorasan via Kuchan.*

This is a main artery for the commercial traffic between Russia, Turkestan and Eastern Persia.

The total length of this road is about 250 kilometres and it is at present operated by the Ministry of Public Works, which levies dues. It is suitable for passenger vehicles, carts and caravans, as it has recently been repaired to allow of the passage of vehicles.

Passenger Transport:

Posting vehicle:	Askabad-Bajghiran, 6 to 9 hours.
	Bajghiran-Kuchan, 12 to 18 hours.
	Kuchan-Meshed, 20 to 28 hours.
	Askabad-Kuchan, 2 days.
	Askabad-Meshed, 3 days.
Posting waggon:	Askabad-Meshed, 3 to 6 days.
Ordinary vehicle:	Askabad-Kuchan. 3 to 4 days.
	Askabad-Meshed, 5 to 6 days.
Ordinary waggons:	Askabad-Kuchan, 3 to 4 days.
	Kuchan-Meshed, 5 to 6 days.

Goods Transport:

By waggon:	Askabad-Bajghiran, 1 to 2 days, 20 to 30 krans per 100 batmans.
	Bajghiran-Kuchan, 3 to 4 days, 30 to 40 kr. per 100 batmans.
	Kuchan-Meshed, 4 to 5 days, 40 to 50 kr. per 100 batmans.
	Askabad-Meshed, 8 to 14 days, 80 to 140 kr. per 100 batmans.
	Askabad-Kuchan, 4 to 8 days, 40 to 70 kr. per 100 batmans.
By caravan:	Askabad-Bajghiran, 2 days, 15 to 20 kr. per 100 batmans.
	Bajghiran-Kuchan, 3 to 4 days, 20 to 28 kr. per 100 batmans.
	Kuchan-Meshed, 12 to 16 days, 35 to 45 kr. per 100 batmans.
	Askabad-Meshed, 12 to 16 days, 75 to 90 kr. per 100 batmans.
	Askabad-Kuchan, 6 to 8 days, 40 to 60 kr. per 100 batmans.

(6) *From Kazvin to Hamadan.*

Road conceded to the same company, which holds the concession for the road from Enzeli to Teheran, length 224 km.

(7) *From Teheran to Kum and Sultanabad.*

Length 280 km. This road is much used, especially by pilgrims proceeding to the holy town of Kum.

(8) *From Djulfa to Khaf*, length 90 km.

(9) *From Teheran to Demavend*, length 72 km.

B. Carriage roads laid with stone, of a total length of 4,500 km., on transport is carried on by waggon.

The following are the principal roads of this kind.

(1) *Trebizond (on the Black Sea) - Tabriz-Teheran.*

Owing to the absence of transport facilities over the Caucasus, goods from European countries except Russia, destined for the North-West

of Persia, which are too heavy or too bulky to be sent by the posting services, must all follow this road. The distance from Trebizond to Tabriz is about 1,100 km., and from Tabriz to Teheran 630 km. On Persian territory the road is practicable for vehicles from Khoi to Tabriz and from Tabriz to Teheran. Tabriz can be reached from Trebizond on horse back in 20 days. From Tabriz to Teheran there are no posting relays, but the distance may be traversed in about ten days by means of vehicles belonging to private carriers.

Transport of Goods.

(a) *From Trebizond to Tabriz*:

Average length of journey: during the summer 75 days, during the winter 45 days.

Average cost[1]: (1) Imports (Trebizond to Tabriz): in bales, about 390 krans per cantar of 230 kgs; in cases, about 420 krans per cantar. (2) Exports (Tabriz to Trebizond): 140 krans per camel-load of 80 batmans.

(b) *Tabriz to Teheran:*

Average length of journey: by horse, 25-30 days; by camel, 40 days.

Average cost[1]: (1) by mule and horse, 5 krans per batman of 1,280 miscals; (2) by camel, 4 krans per batman of 1,280 miscals.

The total journey from Trebizond to Teheran may be completed in three months. The cost from Tabriz amounts to 75-80 tomans per 100 batmans.

(2) *Khoi to Tabriz:* 136 km.

(3) *Khoi-Urmia-Savuchbulagh:* 190 km.

(4) *Quetta-Nushki (British India) to Meshed via Seistan.*

This is a very fine road fit for vehicular traffic along its whole length. It has been kept in perfect order and was improved during the war, and is used for the traffic of goods from Bombay and Karachi.

The present terminus of the railway which has been built from Nushki to Seistan is Duzdab, 52 km. south of Malek-Siah (on the South-Eastern frontier of Persia).

(a) Road from Kuh-Malek-Siah to Nosratabad (Seistan), 155 km. This road is used by motor-lorries. Transport by caravan from Kuh-Malek-Siah to Nosratabad takes 5 to 6 days.

[1] These transport prices were those in force before the war. In view of the disturbed state of Armenia, through which goods from Trebizond to Persia must pass, traffic is very much reduced.

(b) Road from Nosratabad to Birjond, 384 km. This carriage-road, which has been greatly improved, may be used by motors. Length of journey by caravan, 14 or 15 days.

(c) Road from Kuh-Malek-Siah to Birjand, via Palang Kuh and Konek 456 km. Extensive works have been carried out to put this road into working order, and to bring water along its whole length.

This road is at present used by motor-lorries. It is very safe and it is the shortest motor-route from India to Birjand and Meshed.

The journey by caravan from Meshed to Kuh-Malek-Siah - Birjand takes 15 days.

(d) The road from Birjand, to Meshed via Torbat, 456 km. A natural road for vehicular traffic, used by motors. Extensive works will be undertaken upon it in order to allow waggons and motors to use it for fast traffic.

From Birjand to Meshed the journey by caravan takes 20 days.

(5) *Herat (Afghanistan) to Meshed viâ Keriz and Torbat-Sheikh-Jan.*

Natural carriage road to the frontier, 240 km. Average length of journey from the Persian frontier to Meshed : 8-12 days. Average cost, 150-200 krans per 100 batmans.

(6) *Meshed to Teheran.*

This is a carriage-road 900 km. long; it is used particularly by pilgrims proceeding to the holy town of Meshed.

(7) *Bagdad to Teheran viâ Kermanshah.*

This road was of great importance even before the war, as it served for traffic with Mesopotamia, and was used by pilgrims to the holy towns of Kerbela and Nejif ; it has become even more important now that a railway line has been built from Basra to Baghdad, with an extension to the Persian frontier. It is maintained in good condition, and is connected with Hamadan and with the road to Kazvin and also with that from Kazvin to Teheran. The future Baghdad-Teheran railway will take this road.

Distance from Basra to Baghdad, 820 km. along the Tigris ; from Baghdad to Teheran 800 km. by carriage-road. The road from Baghdad to Kermanshah has been rendered available for the transport of goods, and is now quite safe. Goods, unloaded at Basra, are sent up the Tigris as far as Baghdad, and are forwarded to Kermanshah by various means. All restrictions imposed during the war on imports and exports from Mesopotamia have been abolished. Trade has, therefore, again become entirely free. Moreover, goods in transit through this territory do not, at present, pay more in transit charges than one-tenth of the import dues.

The Pushti-Kuh road has been completely abandoned in favour of the Baghdad-Kasri-Shirin road. Its position is, therefore, what it was before the war, that is to say, that the Ali Garbhi or Amara road is only used for the goods importation into Persia of destined for the inhabitants of the Pushti-Kuh territory.

The use of the railway from Baghdad to Ghezel Rabat, the last station open for passenger and goods traffic, (although the rail has reached Kuretu, a place situated on the frontier, about 13 km. north of Kasri-Shirin) has resulted in a considerable decrease in the cost of transport. The decrease in the price of cereals has also appreciably contributed to this reduction.

The *tcharvedars* are in charge of the forwarding of the goods by railway. At the point of departure they group these goods in such a way as to form complete loads, as the railway administration does not accept other methods of transport. Registered parcels will not be accepted until later, when the operation of the line by the military authorities has terminated.

The following are the new transport rates:

1. *Goods.*—The cost of transport per kharvar and length of journey:

(*a*) By tcharvedars:

From Baghdad to Kermanshah, including cost of transport by rail: 250 krans, about 12 days.
From Kermanshah to Hamadan: 220 krans, about 6 days.
From Hamadan to Teheran: 250 krans, about 11 days.

(*b*) Per posting waggon:

From Khanikim to Kermanshah: 350 karns, 3 days.
From Kermanshah to Hamadan: 350 karns, 3 days.

2. *Passengers.*

	By wagon	By carriage to hold 4	By carriage to hold 8
From Khanikin to Kermanshah	90.50	718	586 krans.
From Kermanshah to Hamadan	73	668	516 »

Length of journey: 30 to 40 hours.

Private carriages may be hired on similar terms.

(8) *Ahwas (situated on the river Karun) to Teheran by Ispahan.*

This road serves for traffic from Mohammerah (a port on the Persian Gulf situated at the mouth of the Karun). Goods are loaded on vessels plying on the river, and are unloaded at Ahwaz; total length of journey, 865 kilometres.

(9) *From Bushire (Persian port situated on the Persian Gulf) to Teheran via Shiraz (*50,000 *inhabitants) and Ispahan* (80,000 *inhabitants.)*

This road is 1,332 kilometres long. The importance of the section from *Bushire* to Ispahan has decreased since the road Mohammerah-Ispahan has been used for traffic; this road is chiefly used for the transport of goods to Shiraz; the "kotals", or steep rocks on this road, between Bushire

and Shiraz are difficult to surmount. It may be divided in four sections, three of which are only possible to caravans, while the other has recently been rendered available for vehicular traffic.

The road from Shiraz to Ispahan is also suitable for vehicular traffic.

(10) *From Bender-Abbas, a port on the Persian Gulf to Kerman (70,000 inhabitants).*

This road, which is 520 kilometres long, is divided into four sections, one of which has recently been rendered available for vehicular traffic.

Note.—The above information applies to times when commercial relations are normal, which is not yet the case. In consequence, of the Great War, from which Persia has also suffered, the high-roads have been greatly disorganised, and goods from Europe are not carried by the roads running to the North beyond Iran. If free transit is granted across the Caucasus, the former caravan road from Trebizond to Tabriz will be completely abandoned.

As a result of the high price of forage and the frequent lack of means of transport, the cost of forwarding goods is variable and very high.

Motor Transport.

Motors and motor-lorries run on most of the Persian routes available for vehicular traffic, but no regular service has yet been established. Schemes are at present under consideration, and negotiations have been entered upon with certain business concerns. This means of transport is doubtless destined in a short time to attain a very considerable development, as the construction of railways is a very lengthy affair.

As is well known, petroleum is the greatest national product of Persia and its exploitation in the South is daily increasing. In the North the wells at Baku are close at hand and Persia herself possesses along the whole of the Caspian Sea coast, very rich petroleum-bearing territory which has hitherto not been exploited. There will, therefore, be no lack of fuel.

III.

MARITIME NAVIGATION.

Navigation and the right to a flag are free in the Persian Gulf, the Shat-el-Arab, the River Karun and the Caspian Sea. (The rights of Persia in respect of the Caspian Sea are derived from the new Commercial Treaty with Russia).

(a) Navigation on the Caspian Sea is carried on principally by Russian vessels whose ports of register are Astrakan and Baku. Enzeli is the most

important port in the North of Persia; it was constructed so as to allow vessels to lie alongside the quay. It serves the regions of *Gilan, Teheran and Central Persia.*

General traffic of the ports of the Caspian Sea (in tons imported and exported) before the War, after the War, and at the present time.

Names of Ports: Astara, Talesh, Enzeli, Hassan-Kiadeh, Lengarud, Rudesser Tunekabum, Farahabad, Farikenar, Mashedisser, Bender-Ghez.

	Year	1913-14	Year	1918-19	Year	1919-20
	Number	Tonnage	Number	Tonnage	Number	Tonnage
Steamships	1,900	780,000	1,393	737,361	1,300	750,000
Sailing-vessels..	1,750	24,000	5,066	62,877	1,900	55,000
Total :	3,650	804,000	5,459	800,238	3,200	805,000

(b) The ports of the Persian Gulf are visited chiefly by British vessels. Bushire is the most important port; it possesses two anchorages, one on the exterior road (white light) five miles from the town, and the other inside the port (red light) two and a half miles from the Customs House. This latter roadstead is separated from the Bay of Bushire by a bar which is only accessible to vessels with a draught less than 7 feet. But the bay itself is very deep. All sailing-vessels which wish to pass the bar, load and unload there. The canal mentioned above, which separates the two road, steads, is provided with two floating lights, one white and one red. This canal can be traversed by any steamer with a draught not exceeding 18 feet. In recent years, to avoid the delays resulting from the ebb and flow of the tide, the majority of steamers discharge their cargoes in the outer road stead. The port of Bushire possesses about 400 sailing-vessels, and this number is increasing every year. For this reason coastal traffic between the large and small Persian ports on the Persian Gulf has attained considerable importance. This traffic is about equal to that between Bushire and Shiraz.

Mohammarah, on the Shat-el-Arab, is accessible to sea-going vessels, and possesses a calm and safe roadstead.

Before the war, the ports of the Persian Gulf were regularly served by English, Russian and German steamships. The English vessels plied between British ports, Antwerp or Marseilles, India and the Persian Gulf. The Russian steamships connected Odessa with the Persian ports. The German vessels connected Hamburg and Antwerp with the same points of the Gulf. During the war these shipping services were disorganised, and up to the present they have not been resumed.

General Traffic of Ports on the Persian Gulf (In tons imported and exported before war, after the war, and at present).

Names of Ports: Bushire, Lingah, Bender-Abbass, Charbar, Jask, Mohammarah, Abadan.

	Year 1913-14		Year 1918-19		Year 1919-20	
	Number	Tonnage	Number	Tonnage	Number	Tonnage
Steamships...	1,200	1,900,000	1,020	2,027,962	650	1,400,000
Sailing-vessels.	2,800	90,000	7,720	260,824	4,890	165,000
Total:	4,000	1,990,000	8,740	2,288,786	5,540	1,565,000

(c) Maritime Steam Navigation Service for the Persian ports of the Caspian Sea and Persian Gulf.

Caspian Sea.

(1) "Caucasus and Mercury Company" and "Vostotchnoe Obchstvo".

This company provides for regular communication both ways, during part of the year, between Baku-Astara-Enzeli; between Baku-Bender-Ghez-Mashedisser; between Baku-Enzeli-Mashedisser-Bender-Ghez.

(a) Baku-Enzeli Line direct service in 20 hours. The prices for the conveyance of passengers and goods have considerably increased; at the end of 1918 to 1919 they were:

Enzeli to Baku		*Baku-Enzeli*
1st class passengers	150 kr.	375 roubles
2nd class passengers	120 kr.	250 roubles
3rd class passengers	35 kr.	100 roubles
Goods, 15 krans per pood.		

(b) Astrakan-Mashedisser Line.

This service has been completely suspended since Astrakan and the Volga region have been in the hands of the Bolsheviks.

(c) Baku-Krasnovodsk Line.

This service is disorganised as the result of military necessities and has been carried on irregularly during almost the whole of the year 1918-1919.

(d) Baku-Mashedisser Line.

For the same reasons as those mentioned above, the vessels which serve this line no longer call at Krasnovodsk; on the other hand, they call at Hassan Guli, at Gumuche-Tape and sometimes at Khaje Nefez.

(e) Baku-Bender Ghez via Astara-Enzeli-Mashedisser Line.

A regular weekly service, which has been periodically suspended as a result of the movements of the Bolsheviks, was established between these localities in the last months of 1918 to 1919.

(2) Various companies.

Apart from the regular maritime steam navigation services indicated above, there are on the Caspian a large number of irregular services which it is not possible to indicate clearly in the list, but the most important are the following shipping lines : Alioff Brothers, Gani Memedeff, Baba Ghelieff and the "Samaliod", "Rousse" and "Russo-Caucase" Companies.

Persian Gulf.

Up to the outbreak of the European War in 1914, the steamships of the various lines indicated below provided regular services for the principal ports of the Persian Gulf. These lines had agencies established in all these ports.

British Navigation Lines.

1. British India Steam Navigation Co. Ltd.
   India-Persian Gulf.
2. Strick Line Ltd.
   British Isles—Marseilles—Persian Gulf.
3. Bicknall-Ellerman Line.
   British Isles—Persian Gulf.
4. The Hall Line Ltd.
   British Isles—Antwerp—Persian Gulf.
4. Flower Motor Ship Co. Ltd.
   British Isles—Persian Gulf.
6. Bombay Persia Steam Navigation Co. Ltd.
   India—Persian Gulf.
7. Arab Steamers Ltd.
   India—Persian Gulf.
8. Persian Gulf Steam Navigation Co. Ltd.
   India—Persian Gulf.

Russian Navigation Line

Compagnie Russe de Navigation et de Commerce.
Odessa—Persian Gulf.

German Navigation Line.

Hamburg-America Line.
Hamburg—Antwerp—Persian Gulf.

The only maritime steam navigation services which served the Persian ports of the Persian Gulf during the financial year 1918 and 1919 are the following:

(1) British India Steam Navigation Co. Ltd.
(Weekly service Bombay-Basrah).

The quantity of goods transported by the steamers of this company is limited. But from time to time a special boat calls at the Persian ports in order to expedite the transport of goods destined for the Gulf which have accumulated at Bombay or at Karachi. The freight rates have risen by 40 rs. per cubic ton at 120 rupees. Small steamers belonging to the British India Company call, both going and returning, at Muscat, Henjam, Bushire, Mohammera and Basra. At Henjam these small steamers connect with Bender-Abbas and Lingah by means of the coastguard customs vessels "Gilan" and "Mazanderan", only as regards the transport of mails, passengers and their luggage, pearls, and consignments of specie.

(2) Bombay and Persia Steam Navigation. (Irregular service.)

(3) Arab Steamers Ltd. (Irregular service.)

(4) Persian Gulf Steam Navigation Co. Ltd. (Irregular service.) A few boats called at the Persian ports of the Persian Gulf during the year 1918 to 1919.

(5) Arab Line Ltd. (Irregular service.) A few boats visited the ports of the Persian Gulf during the year 1918 to 1919. This line at present only possesses two steamers. During the above-mentioned financial year, this company chartered Japanese vessels of the Mitsui Kaisha Company.

A small number of other vessels chartered in India by private individuals also called at ports of the Persian Gulf during the year 1918 to 1919.

(6) The Mesopotamia Persia Corporation Ltd. (ex Lynch Brothers). Regular service by launches running twice a day, Sunday excepted, for passengers between Mohammerah and Bassora and vice versa.

IV.

WATERWAY NAVIGATION.

Persia cannot, in general, make use of her river waterways for purposes of communication and transport, as they are not navigable, with the exception of the great river Karun (which is now navigable on 200 km. of its length), and the Shat-el-Arab. The section of the river Karun between the port of Shelylieh, six miles below Shuster, and the rapids of Ahvaz, is called the Upper Karun; and the section between Nassery, south of the rapids, and Mohammerrah, is called the Lower Karun. On a length of 180 km., this latter part is at least 4 feet deep at all seasons of the year. If damming works were carried out on this river, vessels of 500 tons could ascend as far as Shuster.

The navigation dues per ton on the Karun are as follows :—

(a) Steamships . . . . . 1 kran.
(b) Sailing vessels. . . . . ½ kran.
(c) Ships in ballast . . . . . Half rates.

(d) Persian sailing vessels of less than 30 tons are exempted from payment of dues.

As regards the other rivers, transport by vessels of very small tonnage is possible for a short distance only on the Gorgan and Atrek (Turcomania), the Babel (Manzenderan), the Sefid-rund, the Rudbar, the Tchemkhaleh and the Khumamrud (Gilan).

Persia is a riparian State of the Shat-el-Arab from the Persian Gulf as far as Mohammera. The Shat-el-Arab is a watercourse for long-distance traffic ; it bears the same name upstream from the Persian frontier as far as the confluence of the Tigris and the Euphrates, and has no source of its own. Neither the Tigris nor the Euphrates is a main stream or a tributary of the other; they are both tributaires of the Shat-el-Arab, which, in Persian territory, receives the water of another river, the Karun, which is navigable from the sea. The Karun is a national river, opened by Persia in 1888 to the commerce of all nations. A large part of the goods from abroad proceed via the Tigris, over a length of 820 km., to the Persian markets, passing through Baghdad ; at present they are carried by Persian sailing vessels.

Traffic of the Harbours of the Karun (in tons imported and exported) before the war, after the war, and at present.) — Names of Ports : Nasseri (Ahwaz), Shuster.

	Year 1913-14		Year 1918-19		Year 1919-20	
	Number	Tonnage	Number	Todnage	Number	Tonnage
Steamships....	240	27,000	262	17,630	200	18,000
Sailing vessels.	415	4,000	796	15,438	300	6,000
Total :	655	31,000	1,058	33,068	500	24,000

V.—Comparative Table of Persian Trade wiph the Principal Importing and Exporting ountries

			Imports	Exports	Total	
Year	1913-14	(1)	647,164,841	455,839,635	1,103,004,476	kr.
Year	1914-15	(2)	499,322,910	396,057,863	895,380,773	kr.
Year	1915-16	(3)	464,107,965	377,134,614	841,242,579	kr.
Year	1916-17	(4)	494,771,017	433,895,346	928,666,363	kr.
Year	1917-18	(5)	468,065,910	338,714,389	806,780,299	kr.
Year	1918-19	(6)	476,286,793	270,868,943	747,155,736	kr.

Average value of the kran :

(1) Frs. 0.45 — (2) Frs. 0.40 — (3) Frs. 0.44— (4) Frs 0.77 — (5) Frs. 0.89 — (6) Frs. 0.91.

POLAND.

I.

RAILWAYS.

The situation of the railways in Poland is exceptionally serious. In the whole territory of former Russian Poland, the length of the railways, compared with the area of the country, was far from meeting economic needs. During the war the whole system was several times destroyed. The same is true of the railways in former Austrian Poland, and the last Bolshevist invasion has resulted in dilapidations which, in the majority of cases, it has not yet been possible to repair. The principal effort of the Polish Railway Administration has been centred on the reconstruction of the stations, which were almost everywhere destroyed, and on relaying the tracks. The following example shows the extent of the destruction: The Warsaw-Grodno-Vilna line, one of the principal lines in the country, can at present only be partially used because the large bridge of the valley of the Niemen, near Grodno, was twice destroyed, and it has not yet been possible to repair it.

At the present moment certain lines are still of only relative importance, because the Russian Gouvernment, for reasons of a strategic nature, was always opposed to joining up its system with the German and Austrian systems; so that with few exceptions, the lines in former Russian Poland stopped 10 or more km. from the old frontier. The Railway Administration is at present engaged in connecting the various sections of its system. There is still about 700 km. of broad-gauge Russian track, all of which will be couverted into standard gauge in the near future.

The shortage of rolling stock cannot be exaggerated. The lines of former Russian Poland, which were always insufficiently equipped, were left entirely without rolling stock. All the rolling stock which Poland has at present, consists of the locomotives and wagons which could not be withdrawn from the Polish territory at the end of the war by the occupying administrations. This stock is very limited. It is dissimilar in character and of inferior quality, because the Polish theatre of operations, towards the end of the war, was only of secondary concern to the Central Empires.

The manufacture of locomotives and wagons is still impossible, because before 1914 all the rolling stock on the railway systems in the three sections of Poland were supplied by factories outside Polish territory. For the same reason it is very difficult to repair damaged stock and the material for this purpose is quite inadequate.

Under the Treaties of Versailles and St. Germain, Poland is entitled to a specified share in the distribution of German and Austrian rolling stock. Unfortunately it has not been possible to complete this distribution up to the present ; this regrettable delay has already caused considerable difficulties to the Polish Government, and in the interests of the normal operation of the railways, the distribution should be completed in the shortest possible period.

The purchase of rolling stock from abroad has only been possible in very small quantities owing to the present condition of the Polish exchange.

The shortage of coal has a considerable effect on the operation of the Polish railways. Before the war a large part of the coal used was imported from Upper Silesia. In spite of the favourable decisions of the Inter-Allied Coal-Distribution Commission, up to the present unjustifiable difficulties have been put in the way of Germany's delivery of Upper-Silesian coal.

Statement on the Situation in Poland.

Length of track operated by the Polish State Railways and the condition of the Rolling-stock.

Railway Directorates		Normal gauge; single track.	Double track.	Total	Narrow gauge; single track
Warsaw	Km.	379	728	1,107	1,176
Radom	,,	1,353	559	1,912	458
Cracow	,,	1,076	333	1,409	13
Lemberg	,,	1,267	520	1,787	71
Stanislawow	,,	1,161	—	1,161	—
Posen	,,	1,552	784	2,336	454
Vilna	,,	1,654	2,511	4,165	410
Danzig	,,	1,160	646	1,806	No data
Free City of Danzig	,,	88	58	146	available
	Kilometres...	9,690	6,139	15,829	2,582

About 700 kms. of (Russian) broad gauge will shortly be converted to normal gauge.

Rolling-stock	Normal gauge	Narrow gauge	Percentage of stock damaged	Russian type
Locomotives	3,855	325	47.73%	225
Passenger coaches, luggage and postal vans, etc.	8,560	426	24.15%	458
Goods trucks	69,263	4,911	8.51%	8,730

Traffic in the first half of 1920.

		First quarter	Second quarter
		Warsaw, Radom, Cracow, Lemberg, Stanislawow, Vilna Railway	Warsaw, Radom, Cracow, Lemberg, Stanislawow, Posen, Vilna and Volhynie.
Train Kilometrage	passengers	3,553,814 km.	5,088,855 km.
	goods	4,566,533 km.	5,873,762 km.
Axle-Kilometrage	passengers	100,207,659	145,248,808
	goods	339,408,444	458,272,686
Gross tonnage Kilometrage	passengers	791,524 thousand km. tons.	1,152,131 thousand km. tons.
	goods	2,010,942 —	2,926,800 —
Locomotive Kilometrage	with trains	8,741,230	11,601,136
	without trains	3,816,157	4,376,668

Receipts

	Tickets sold. (Number)	Luggage and parcels	Parcels by slow and fast train
Warsaw	27,687,127	91,483	8,418,221
Radom	5,721,869	12,371	2,609,574
Cracow	17,405,112	18,490	4,811,810
Lemberg	8,693,123	19,882	4,948,702
Stanislawow	3,219,998	4,212	923,723
	62,727,229	146,438	21,712,030

	Receipts tickets	Receipts luggage	Receipts parcels	Receipts miscellaneous
Warsaw	588,131,581	60,096,484	780,171,054	84,495,309
Radom	110,112,268	6,130,130	53,571,240	1,918,000
Cracow	274,984,150	14,707,890	367,208,830	
Lemberg	182,523,542	15,190,368	598,260,936	
Stanislawow	54,431,163	3,104,756	85,035,053	
	1,210,182,704	99,229,628	1,884,247,104	86,413,309

Grand total: 3,260,072,744 Polish marks.

Fuel.

Total consumption of fuel of every kind:

Coal, 300,000 tons per month.
Wood, 140,000 cubic metres per month.

Origin: Dombrowa Basin, Cracow, Karvin and Upper Silesia. The prices are fixed by the Economic Committee of the Council of Ministers.

II.

RIVER NAVIGATION.

Condition of Ports.—There are no commercial ports in the strict sense of the term, on the navigable rivers of Poland.

The halts on the Vistula—Cracow, Posternik, Sardemir, Warsaw, Modlin, Plock, Torun (Thorn) Grudziadz (Grendens), Tczew serve chiefly for the requirements of the river administration, and offer small facilities for unloading. The only places connected by rail with neighbouring railway stations are the halt at Cracow, the port of Nadbrezie and the provisional station at Fort Sliwicki at Praga. There are also a number of halts for timber-rafts on the Augustow canal.

Condition of the Waterways.

Navigable Rivers.—The channel of the Vistula has been regularised, to some extent, from the mouth of the Przelmska as far as Zawichost, and from the former Russian-Prussian frontier as far as its mouth. In the rest of its course, the channel has not been regularized and is only navigable with difficulty. Among the navigable tributaries of the Vistula, the Dunajec, the Visloka and the San have been partially improved; the Bug, Wieprz, Pilica and the Narew have not been improved; the Bug and the Narew are the only tributaries on which navigation is at present carried out. The Dniester has been partly regularised, but navigation—which was negligible before the War—has now ceased entirely owing to lack of material. In the former Prussian-Poland, in addition to the Vistula, the following waterways are navigable and have been regularised: the Warta, Glda, Notec, Obra, Wierzyca and also the tributaries of the Vistula, the Broda, the Czarna, Woda, Drweca and the Przemska, the Bronislawski Canal, from the Notec towards Bronislawow, the canal from Brda to the Notec, and the Foliszow waterway. In the centre and the East of Poland there are the canals of Augustowski, Krolewski and Oginski (destroyed during the war and practically non-existent.)

Work to be Carried Uut.

1. The regularisation of the Vistula throughout its course.
2. Reconstruction of the Augustowski Canal and repairs to the Krolewski Canal.
3. The Port of Warsaw, now under construction, which will include 7,500 metres of wharves and basins, and will have a loading capacity of 1,500,000 tons, will have to be connected with the Brest Railway, after the channel of the Vistula has been improved, so as to make this port

accessible. The construction of the first 1,000 metres of wharf should be completed during the course of the year.

The construction of commercial ports at Cracow, Plock, Wloclawek, and Tczew is under consideration. A canal for barges of 600 tons is being constructed between the Dombrowa basin and Cracow. The construction of the circular canal at Warsaw has also been commenced. The extension of the Dombrowa-Cracow Canal (along the right bank of the Vistula as far as the mouth of the San) is being considered. Plans are being made for a canal from Dombrowa via Warsaw to Wiala or Thorn, to afford communication with Danzig. A scheme for a canal connecting the Warta at Konin with the Brda-Notec canal by Lake Goplo will be considered in the near future.

Material.

Until this year, navigation had been entirely in the hands of the State. The Polish Directorate of Navigation possesses :

5 passenger vessels of 800 h. p., taking 5,000 passengers in all.
6 passenger vessels of 565 h. p., taking 5,000 passengers in all.
9 first-class tugs of 2,145 h. p.
8 second-class tugs of 1,000 h. p.
7 3rd-class tugs of 395 p. h.
1 cargo-boat of 100 h. p.
2 ferry-boats of 120 h. p.

The Directorate for the improvement of Navigable Waterways possesses 9 vessels of 366 h. p.

The Ministry of War possesses 10 vessels of 492 h. p.

Speaking generally, the condition of these vessels and their tonnage leaves much to be desired, and they are in no way adequate for the needs of the country. Little can be done to improve the situation by private enterprise, since the latter will be chiefly dependent on the vessels mentioned above, of which one-third will be handed over by the State.

Traffic.

During the financial year 1919-1920, navigation on the Vistula was carried on with three objects :

1. Transport of passengers and goods between Warsaw and Plock or Wloclawek and between Warsaw and Sandomir ;

2. Towage of skiffs, barges and lighters, between Warsaw and Danzig, and Warsaw and Sandomir ;

3. Transport of coal in small quantities by barges and lighters on the Upper Vistula.

Passenger traffic has been interrupted on the Narew between Poltusk and Zegrze. On the other hand transport of goods and timber has been

carried on, according to requirements and to the means available, on the Bug and the Narew.

The Bydgoszcz (Bromberg) Canal, which is destined to connect the Vistula and the Oder, and also the rivers Notec and Warta were occupied by the Polish authorities in January 1920 for political reasons, and navigation on them was restricted.

On the rivers Narew, Biobrza, Bug and on the Augustowski Canal there was very little navigation, even before the war. These waterways are indeed of negligible value for transportation purposes, as the locks on the canal are of an obsolete type and the rivers are not regularised.

Transport of Passengers and Goods.

	1919	1920
Passengers	472,021	361,581
Luggage	4,088,492 kg.	1,658,510 kg.
Goods by boat	6,741 tons	
Goods by barge . . .	152,766 tons	282,862 tons
	30,000,000 km. tons	40,000,000 km. tons

Freights.—As a result of the economic condition of the country:

In April, 1920	increase of 25 %
In June	» 50 %
In September	» 50 %

Fuel.—Requirements of the State navigation service:

Coal, about	60,000,000	tons
Oil, about	25,000	tons

besides 6,000 tons of coal and 5,000 tons of oil for the remainder of the fleet.

PORTUGAL.

I.

RAILWAYS.

1921.

Name of Lines	Length in kilometres	Receipts in crowns.
Portuguese Railway Company	1,146	27,432,388 (L)
Beira Alta Railway Company	253	2,292,414 (L)
Sté de Estoril (Lisbon-Cascais)	26	1,164,269 (L)
State Railways	1,265	8,719,943 (L) (l)
National Railway Company	185	582,578 (E)
Oporto to Povoa & Fanalicao Railway Company	64	632,325 (E)
Guimaraes Railway Company	56	437,190 (E)
Vouga Valley Railway Company ...	176	711,481 (E)
Total....	3,171	41,972,588

(E) Narrow gauge.
(L) Broad gauge.
(l) Including 137 kilometres of narrow-gauge line.

The condition of the lines is satisfactory and there is little urgent repair work needing to be done.

The construction of the secondary lines which had been planned is continuing. These lines will facilitate the improvement of the economic condition of the country.

The double track between Lisbon and Oporto (via Santarem) is almost completed, and work is about to be begun on the scheme for electrifying the Lisbon-Estoril-Cascais line, which is also double track.

The rolling-stock is not in good condition. There are a great number of engines, coaches, and waggons under repair. This position is due to the war, which has led to a shortage of material and a decrease in the amount of labour available (by reason of the adoption of the 8-hour day).

The international services running are the following :

Lisbon-Paris with a connection for the Pyrenees (via *Vilar Formosa) :*

1 slow train a day	In each direction.	
1 express 3 times a week	»	»
1 luxury express (Sud-express) 3 times a week	»	»

Lisbon-Madrid-Barcelona-Marseilles-Nice (via *Marvao) :*

1 mail train a day	In each direction.	
1 express train a day	»	»
1 express train with dining car 3 times a week .	»	»

Lisbon-Oporto-Galicia (via *Valença) :*

1 slow mail train (direct) a day . . . . . In each direction.

Oporto-Madrid-Paris (via *Barca d'Alva) :*

1 mail train a day . . . . . In each direction.

The number of trains on the internal services is almost as great as before the war.

The rise in passenger and goods rates owing to the war is about 400 %.

The fuel in use is English coal, the stocks of which are sufficient for from 3 to 4 months.

The present (1921) price is from 90/100 crowns a ton.

The financial position of the companies is not good. The receipts are insufficient to meet the excessive price of materials and of fuel, caused by the condition of the exchange and the increase of salaries.

II.

SEA AND WATERWAY NAVIGATION.

The ports of Lisbon and Leixoes (Oporto), which are available for ships of large tonnage are the most important in the country. They are in good condition, but improvements are at present being carried out by the construction of mooring wharves, of new docks and of high-power cranes.

Improvements are shortly also to be carried out in the other ports.

The traffic of the port of Lisbon in 1920 was the following :

Ships entering the port . .	3,226	(gross tonnage	6,696,797)
Ships moored to the wharves	1,690	(» »	2,127,796)
Passengers in transit . . .	141,637		

Goods (1919) :

Loaded	1,142,488	tons
Unloaded	498,484	tons

Postal traffic :

Loaded	12,098	tons
Unloaded	34,126	tons

Traffic of the Port of Leixoes and of the River Douro :

Ships . . . . . 1,256 (liquid tons : 1,233,839).

The total traffic of the ports of the whole country in 1919 was as follows :

Goods loaded	1,664,312
Goods unloaded	843,480
Passengers embarked	46,576
Passengers disembarked	28,906

The waterways, which should be specially mentioned because of the great facilities they offer for navigation, are the Tagus, the Douro, and the Guadiana. The last is navigable for ocean-going ships as far as Pomarao and for small steamers up to Mertola. The other rivers are barely navigable.

The river traffic in 1920, leaving out the Guadiana, was as follows :

Ships. . . . . 1,493 (8,939 tons)

Condition of the Merchant Marine.

The Merchant Marine is at present composed of :

86 sailing ships exceeding 100 tons	28,782	tons
116 steamships (60 of which are over 1,000 tons) . . .	246,417	tons
Total.	275,199	tons

The steamship services are carried on by the following companies :

Empreza Insulana :

Lines to the Azores and Madeira.

Companhia Nacional de Navegacao :

Lines to the East and West African Ports.

Transportes Maritimos de Estado :

Lines to East and West African Ports and to Ports in Northern Europe and South America.

The rise of the passenger and goods rates, compared to 1914, is 1,000 %.

The fuel used is Cardiff coal, the present price of which (owing to the exchange), varies from 90 to 100 crowns per ton.

The shipping companies are at present passing through a serious crisis, and are obliged to suspend certain services.

III.

ROADS.

The ordinary road system in Portugal includes four classes of roads : national roads, district roads, " service " roads, and municipal roads.

National roads are those which connect the capital of the districts with each other, with seaports or with the frontier, and they are regarded as being of " public interest ".

District roads are intended to establish communication between cities or towns and other important centres of production and consumption, thus completing, so to speak, the system of national roads.

The category of " service " roads comprises those which give access to railway stations, to roads of other categories and to places of small importance.

The State undertakes the planning, construction, maintenance, policing and repair of the first three classes of roads, and the municipal councils undertake the same duties in respect of municipal roads.

When the construction of all the State roads provided for in the scheme annexed to the decree of February 21st, 1889, has been completed, the total length of roads will be nearly 20,000 kilometres, but on June 30th of this year there were hardly more than 13,000 kilometres completed.

On that date the length of the roads either completed, under construction, or projected was as follows :—

Classes	Constructed.	Under construction.	Plans completed.	Plans not completed.	Total.
National Roads.....	6,460	124	1,120	512	8,216
District Roads	5,804	325	2,971	1,717	10,817
Non-classified Roads....	1,134	250	1,008	619	3,011
Total...	13,398	699	5,099	2,648	22,044

The municipal roads are only of local interest, but this does not lessen their importance from the point of view of the facilities they provide for the transport of produce from agricultural and industrial centres to the main consuming centres and for the acquisition, under favourable conditions, ot the manure and raw materials lacking in those centres.

The development of roads of this class has always been delayed through lack of assistance on the part of the municipal authorities and the small attention that has generally been given to this question.

The Portuguese Colonies.

RAILWAYS.

The railways in the Portuguese Colonies especially intended for transit traffic are the following:

Line from Lorenzo Marques (Delagoa Bay) to the Transvaal Frontier.—The terminus of the railway is the port of Lorenzo Marques, upon which the Portuguese Government has spent more than £ 3,000,000 and which has been equipped with quays for mooring ships, stores, depots, cranes (the most powerful of which is able to unload weights of 80 tons) and with all modern appliances. Transit traffic is carried on with the Transvaal and Swaziland.

Line from Beira to Rhodesia.—The terminus of this line is the port of Beira, which can easily take ships drawing as much as 30 feet.

The entrance to the port is well buoyed and lighted and the port is equipped with quays at which barges can be moored. Transit traffic is carried on with Eastern Rhodesia, Northern Rhodesia and the Belgian Congo.

Line from Lobita to the Congo Frontier.—This line was begun to meet the requirements of transit traffic with Katanga. Its terminus is the port of Lobita, one of the best in West Africa, which already possesses a quay providing mooring accommodation for vessels drawing 35 feet. This line, for the construction of which the concession was granted to Robert Williams, ought to have been already completed according to the terms of the contract, but circumstances over which the Portugese Government had no control have delayed its completion.

The line from Lobita which is to connect the port of Lobita with Beira and Lorenzo Marques, in West Africa, will be of great importance in the future because it will constitute the shortest route between the East and Eastern America.

Mormugao Line (India).—The Mormugao railway connects at the frontier with the Indian system of the Southern Maharatta Railway;

the guaranteed interest upon the capital of £ 1,350,000 enjoyed by this line has always been a very heavy charge upon the finances of Portuguese India.

Works have been and are still being carried out in the port of Mormugao. Access to the port is easy and the port possesses the necessary equipment for traffic requirements.

* * *

Other railways have been begun, especially for transit purposes, such as the line from Quelimane to Chire and the line from Mozambique to the Lakes. Unfortunately, owing to the war, construction was suspended and it has not yet been possible to resume it as actively as would be desirable.

A gauge of 1 m. 067, which is the same as that of the South African railways, has been adopted everywhere upon these lines, with the exception of the line from Loanda to Malange which has a gauge of 1 metre, the reason being that this line was begun in 1885, that is to say at a time when railways had hardly begun to be constructed in Africa, and consequently the normal gauge had not yet been fixed.

On railways of local importance varying gauges have been adopted in agreement with the commercial interests concerned.

A table of the railways existing in the Portugese Colonies follows.

Railways in the Portuguese Colonies.

I. Mozambique.

Line from Lorenzo Marques to the Transvaal:

Total length (with the Polana branch lines) . . .	94,5 kilometres
Gauge	1 m. 067
Gross receipts in 1914	1.196.627 $ 36
Ratio between expenditure and receipts	0,752

Line from Swaziland (under construction):

Length constructed	81 kilometres
Gauge	1,067
Gross receipts in 1914	15.316 $ 71
Ratio between expenditure and receipts	2.821

Line from Chai-Chai to Manjacaze:

Length constructed	52 kilometres
Gauge	0,75
Gross receipts in 1914	33.254 $ 31
Ratio between expenditure and receipts	0,821

Line from Moamba to Kinavane:

Length constructed	89 kilometres
Gauge	1 m. 067
Gross receipts in 1915	20,797 $ 40
Ratio between expenditure and receipts	2,602

Line from Inhambane to Inharrime:

Total length	92 kilometres
Gauge	1 m. 067
Gross receipts in 1914	30.709 $ 09
Ratio between expenditure and revenue	1,311

Line from Mozambique to the frontier (in course of construction).

Length constructed	38 kilometres
Gauge	1 m. 067

Line from Quelimane to the Maquival:

Total length	28 kilometres
Gauge	0 m. 60
Gross receipts in 1914	$ 16.848,40
Ratio between expenditure and revenue	0,636

Line from Beira to the frontier (Menini):

Total length	339 kilometres
Gauge	1 m. 067
Gross receipts in 1914	$ 1.780.739,05

Line from Beira to the Zambesi (in course of construction).

Line from the Zambesi to the frontier (in course of construction).

These three latter lines are in the territory administered by the Mozambique Company.

Villa Durao Line.—This line, the construction of which had been previously commenced, was closed during the war. It starts from the left bank of the River Maquival and follows the direction of the peaks of Namule.

Line from Lorenzo Marques to Marracuene.—This narrow-gauge line serves the neighbourhood of Lorenzo Marques and connects this town with the district of the Marracuene on the River Incomatic.

II. Angola.

Lines from Mossamedes to Humbe (in course of construction) :

Length constructed	186 kilometres
Gauge	0,60
Gross receipts in 1914	88.836,97
Ratio between expenditure and revenue	0,539

Line from Lucala to Malange:

Total length	140 kilometres
Gauge	1 m.
Gross receipts in 1914	40.334,84
Ratio between expenditure and revenue	1,241

Line from Loanda to Lucala:

Total length	364 kilometres
Gauge	1 m.
Gross recepts in 1914	345.726,09
Ratio between expenditure and revenue	0,804

Line from Lobito to the frontier (in course of construction) :

Length constructed	519 kilometres
Length in course of construction	107 kilometres
Length to be constructed	667 kilometres
Gauge	1,067 m.
Gross receipts in 1914	381.812,14
Ratio between expenditure and revenue	0,793

III. San Thome and Principe.

Fruidada Line[1] (in course of construction) :

Length of line already constructed	15.4 kilometres
Gauge	0,75 m.
Gross receipts in 1914	17.304,99
Ratio between expenditure and revenue	1,57

[1] In addition to the Fruidada line, the plantations are served by narrow-gauge lines of a width between 0,50 and 0,75, of which 250 kilometres are being worked.

IV. **India** (Goa).

Line from Goa to the frontier:

Total length	87 kilometres
Gauge	1 m.
Gross receipts in 1914	$ 258.265,65
Ratio between expenditure and revenue	0,558

Summary of Statistics for the Portuguese Colonial Railways.

Railways	Cost of construction	Per kilometre	Length of line in kilometres			Gauge in metres	No. of stations
			in working	in course of construct.	to be constructed		
Worked by the State	$	$					
From Lorenzo Marques to the frontier	—	—	89	—	—	1,067	10
From Mossamedes to the Lubango . .	2,236,185.36	12,705.59	183	3	63	0,60	15
From Lucala to Malange	2,665,861.27	19,041.67	140	—	—	1,0	6
From Lorenzo Marques to Swaziland	1,862,212.46	25,165.03	74	—	7	1,067	8
From Cha-chai to Manjacaze	272,992.24	5,249.85	52	—	—	0,7	5
From Moamba to Xinavane	800,599.50	8,995.50	89	—	—	1,067	6
From Lorenzo Marques to Polana . . .	—	—	5,5	—	—	1,067	2
From Inhambane to Inharrime	—	—	89	25	—	1,067	9
From San Tomé	458,588,17	29,784.94	14	5,131	8,724	0,75	6
Total . . .			735,5	33,131	78,724		67
Worked by private companies							
From Mormugao to the frontier	—	—	82	—	—	1,0	14
From Loanda to Lucala	12,459,342.85	34,228.96	364	—	—	1,0	30
From Beira to Menini	—	—	339	—	—	1,067	18
From Lobito to the frontier	21,827,323.31	42,056.49	519	107	667	1,067	25
From Quelimane to the Maquival . . .	167,052.09	6,065.36	28	-	—	0,60	6
Total . . .	—	—	1,332	107	667		93
General Total . . .	—		2,067,5	140,131	745,724		160
				2,953,355			

In addition to these railways lines already working, the following lines are in course of construction:

Quelimane to the frontier...	Colony of Mozambique
Beira to the Zambesi	
Zambesi to the frontier.....	
Maquival to Villa Durao....	
Mozambique to the frontier .	

and the construction of the following lines is being considered:

Malange to the frontier.....	Angola
Bengueda Veiha to Amboim	

ROUMANIA.

I.

RAILWAYS.

The Roumanian State, recognising the importance of railways for its development, has made great sacrifices in order to re-purchase concessionary lines and to construct new lines.

Up till the end for 1914, at the beginning of the world-war, Roumania had expended on railways 1,200 million gold leis—a very considerable sum for a small State with a population of seven millions with its industries still in their infancy.

A. The Old Kingdom.

Situation before the War.

The railway system of the Old Kingdom was well constructed, with lines of normal gauge, steel bridges over the large rivers, such as the Danube (3,491 metres), the Olt (375 metres), the Arges (330 metres), and the Siret (254 metres), etc.; in short, the Roumanian railways had succeeded in developing their traffic up to the standard attained in the great countries of Central and Western Europe, as will be seen from the following figures, which show the average for the last five years (1909-10 1913-14).

Length of lines	3,437	km.
Number of stations	417	
Number of halts	39	
Gross receipts	103,910,651	lei.
Total expenditure	66,664,937	»
Credit balance	37,245,714	»

Passengers:

Passengers carried	10,830,553
Passenger kilometres	775,686,462
Average run	71.6 km.
Receipts	36,517,723 lei

Luggage:

Tons carried	21,779
Kilometric tons	4,082,666
Average run	187 km.
Receipts	1,175,396 lei

Goods:

Goods carried by fast trains		89,438 tons
Goods carried by slow trains		8,396,249 tons
Kilometre-tons carried by fast trains		16,370,791
Kilometre-tons carried by slow trains		335,837,913
Average run	Fast	183
	Slow	159
Receipts	Fast	3,585,570 lei
	Slow	59,176,678 »

Tonnage of Incoming and Outgoing Goods at Roumanian Ports.

	Outgoing	Incoming
Constanza Port	68,509	159,279
Braila Docks	81,820	86,387
Braila Port	156,142	266,583
Galatz Port	—	84,771
Galatz Dock	29,132	1,211,800

Rolling Stock.

The system was operated with the following rolling stock, no reduction being made for engines under repair:

Locomotives	1,072
Passenger coaches	1,497
Mail and luggage vans	153
Goods trucks	23,736

Fuel.

The annual consumption of fuel was as follows :

Black coal, 86,484 tons, price 37 lei per ton.
Lignite, 220,204 tons, price 15 lei per ton
Wood, 235,510 cubic metres, price 9 lei per ton
Petroleum, 175,920 tons.
The total price of fuel amounted to 14,598,089 lei per year.

From the beginning of the world-war (August 1914) the receipts of the railways suffered heavy losses, which were chiefly due to the almost total cessation of traffic with Western Europe and with our ports of Galatz, Braila, and Constanza, and to the closing ot the Dardanelles (which was the route used by the greater part of the Roumanian traffic), with the result that the net receipts for the year 1914 to 1915 fell from 37 to 20 millions.

After our entry into the war, our stations, bridges, workshops, and ports were damaged by bombardment from aeroplanes and Zeppelins.

Subsequently, during the retreat of our armies and of the Russians, a portion of these works was destroyed at the request of the General Staffs, among others the great bridge over the Borcea (3 spans of 140 m.).

During the invasion, the enemy armies destroyed bridges, stations, etc., without any reason.

Finally, during the occupation, which lasted more than two years, the enemy carried out demolitions and alterations with the sole object of using our products to their own advantage and of facilitating their military projects.

The supplies of materials at stations, workshops, and bridges were carried off and partly destroyed ; the platforms, plant, and other structures were also destroyed, so that our country will for a long time to come be unable to make full use of its means of transport.

The action taken by the enemy in their retreat was still more disastrous for us, for they then destroyed not only engineering works, but also furniture, archives, and stations, besides carrying off waggons and locomotives.

The damage caused to movable and immovable property is known exactly ; it was calculated from estimates made on the spot by competent persons taking inventories into account and having regard to the prices ruling in 1919, the earliest time at which the various materials, instruments, and machines stolen or destroyed could be replaced (pre-war values had increased three-fold).

The total of this damage was as follows :—

Nature of Damage	*Value*
1. Structures, station plant, furniture	96,745,188
2. Various electrical apparatus, instruments and materials	4,492,720
3. Track, embankments, bridges	38,107,903

4. Miscellaneous materials	143,656,453
5. Rolling-stock	475,021,970
6. Mechanical fittings of workshops and stores	23,742,407
7. Fuel	13,788,071
8. Cash removed by the Germans	1,228,040
Total gold lei	796,782,712

Some of these works have been rebuilt provisionally because their final reconstruction (54 bridges in addition to the Borca bridge) requires very large expenditure, and could not be finished in less than three years.

Owing to the enormous and increasing prices (12-14 times pre-war figures) and to the high cost of labour, their reconstruction will require a sum at least four times greater than we claimed from the Reparations Commission (Peace Conference), i. e., at least 3-4 milliards.

As in their retreat the enemy removed and destroyed our rolling stock, when the Armistice was concluded the Old Kingdom had a very inadequate number of locomotives and wagons ; and of these many were almost unfit for use, viz :

Locomotives	641
Passenger coaches	1,141
Goods trucks	10,673

This number was all the more inadequate, since, as a result of the occupation of a part of the territory which was to be allotted to Roumania, the Roumanian railway system had been greatly extended.

At the time of the Armistice the Allied Armies had occupied a part of the territory which was subsequently allotted to Roumania. As no statistics regarding the captured rolling stock were drawn up, and as part of this material was removed by the Allied Armies when they left the occupied districts, we can give no figures for this period.

B. The Railway System of Greater Roumania.

The Present Situation.

The territory allotted to Roumania by the Peace Treaties of St. Germain, Trianon, etc., appreciably enlarged the Roumanian railway system (11,678 km., as will be seen from the table below).

TABLE

OF THE LINES OF THE ROUMANIAN RAILWAY SYSTEM.

Situated in	State Lines					Private Lines						Total Kms.	Stations	Cantons
	Standard		Broad		Narrow	Adm. by State		Private Adm.		By Companies				
	Single	Double	Single	Double		Standard	Narrow	Standard	Narrow	Standard	Narrow			
Old Kingdom	3,661	193	21	—	150	—	—	128	202	—	—	4,357	479	1,939
Bessarabia	—	—	959	169	—	—	—	—	—	—	—	1,129	115	409
Bukovina	193	—	—	—	28	—	—	414	22	—	—	659	165	111
Transylvania	1,985	—	—	—	—	2,024	650	506	199	148	21	5,533	649	2,627
Total	5,839	193	980	169	178	2,024	650	1,048	423	148	21	11,678	1,048	5,086

All these lines, especially those of Bessarabia and of Bukovina, have suffered considerable damage as a result of the war, and will require extensive repairs for their complete restoration.

Rolling Stock.

On the other hand, the only rolling stock which is fit for use (see figures below) has become entirely inadequate to meet the requirements of the whole State railway system.

Serviceable locomotives	996
Serviceable passenger coaches	3,016
Serviceable goods trucks	47,007

These figures include the wagons which are in use. The total number of wagons in the possesssion of the State Railways is 84,000, including damaged wagons handed over to Roumania, as the Reparations Commission has not yet given its decision on the distribution of the material which belonged to the former Austro-Hungarian Monarchy.

From a comparison of these two tables, it will be seen that there are at present for every 100 km. of track :

Locomotives	8
Passenger coaches	26
Luggage and mail vans and goods trucks	402

Whereas before the war there were :

Locomotives	31
Passenger coaches	43
Luggage and mail vans	4
Goods trucks	690

Fuel.—The present consumption of fuel, the cost of which is approximately 470,000,000 lei, is as follows :—

Lignite, 197,465 tons, at 116-212 lei per ton. Black coal, 504,065 tons, at 356-426 lei per ton. Petroleum, 117,530 tons, at 500 lei per ton. Wood, 1,961,145 cubic metres, at 72-100 lei.

This consumption will be appreciably increased when normal traffic is restored.

Traffic.—The figures regarding traffic for the year 1918-1919 are as follows :—

Passengers carried	4,902,914	
Gross receipts	36,952,656	lei
Luggage	12,654	tons
Gross receipts	3,434,935	lei

Goods carried	(fast trains)	7,805	tons
	(slow)	675,008	tons
Gross receipts	(fast trains)	1,020,492	lei
	(slow)	18,343,588	lei.

The figures for the year 1919-1920 have not yet been ascertained.

In comparing these with pre-war figures, the depreciation of the currency must be taken into account.

Financial Results.—The financial results can only be described as disastrous. They show a deficit of approximately 330 millions for the year 1919-1920, and of 186 millions for 8 months (1920-1921), whereas before the war they showed a profit of almost 40 millions a year.

Rates.—The pre-war rates have been gradually increased, as follows :

(1) Passengers :	1st class	600 %
	2nd class	500 %
	3rd class	400 %
(2) Luggage		500 %
(3) Goods		500 %

In addition a supplementary rate of 5 % is levied for the relief fund, and 20 % as a bounty for workmen and employees, so that the uniform kilometric charge for 100 km. is as follows :

1st class		1,28
2nd class		0,75
3rd class		0,43
Luggage per 10 kg.		0,0375
Goods, by fast train per 100 kg.		0,33
Goods, by slow train, per 100 kg.	Amount below 5,000 kg.	0,154
	At least 5,000 kg.	0,104
	At least 10,000 kg.	0,083
Cereals, per 100 kg.		0,055
Fuel, per 100 kg.		0,0275

Measures undertaken to improve the Railways.

From the conclusion of the general Armistice up to the present, Roumania has made great efforts to improve her railways, in order to fit them for service both to the country itself and to international transit and communications.

With this object, she has expended for repairs of bridges, track buildings, and plant, the sum of 449,500,000 lei.

She has ordered in America 350 locomotives, for which she has opened a credit of	1,247,500,000 lei
In Germany 125 new locomotives and repairs to 450 locomotives, credit opened for	449,080,000 lei
In Czecho-Slovakia, 80 new locomotives, and repairs to 500 locomotives, 570 passenger coaches and 800 goods trucks. Credit opened for	638,000,000 lei
In Austria, repairs to 500 locomotives. Credit	210,000,000 lei
At Resitza (in the Banat) 60 locomotives a year for 10 years, and repairs to 180 per year. Credit . . .	42,000,000 lei
From the Société Française de Braila, repairs to 120 locomotives a year for 10 years	48,000,000 lei
From Lemaître, Société Belge (Bucharest), repairs to 120 locomotives per year for 10 years	48,000,000 lei
From Grivitza, Société Roumaine, repairs to 300 locomotives and 5,000 waggons for 10 years	620,000,000 lei
Total expenditure will be	3,752,080,000 lei

To be in a position to meet all these requirements and to complete the other works which are absolutely necessary, Roumania must have at her disposal a sum of at least 3 or 4 milliard paper lei, i. e., 300-400 million gold lei ; this we hope to obtain if the Barcelona Conference will support our claim to the Supreme Council to compel the enemy to reimburse us for part of the repairs demanded by Roumania.

International Passenger Traffic.

The Roumanian Delegation takes this opportunity of once more drawing the attention of the Conference to the question of international passenger traffic, which has been the subject of various Conferences, and to request that the through and express trains which existed before the war may again be run, giving Roumania through connections with Northern Europe, England, Belgium, Sweden, the Netherlands, Norway and Germany.

At present, owing to an unfortunate interpretation, Roumania has only a single through route, by the Simplon-Orient express, which serves a very small portion of the country, with the result that the distance between Roumania and the great capitals of the north is about 400 km. longer than it should normally be (Ostend-Bucharest 2,999 instead of 2,605 ; London-Bucharest 3,156 instead of 2,830 km., etc.).

The Roumanian Delegation ventures, therefore, to bring this question once again before the Conference, as was done at the Posts and Telegraph Conference and at the Conference on Passports and Through Tickets convened by the Provisional Committee on Transit and Communications, and to request that the through and express trains which leave Paris and Brussels and which now stop at Vienna may continue their journey with

the same waggons to Bucharest via Budapest. We would also ask that the trains from Berlin should continue their journey via Oderberg-Predeal to Bucharest, as was done before the war.

We again draw the attention of all whom it may concern to the fact that Roumania has not adhered to Article 2 of the Inter-Governmental Convention, by which the signatories of that Convention, establishing the Simplon-Orient Express) were forbidden to take part in running other express trains with through carriages.

Article 2 of the Draft Convention for an International Railway Regime, which is to be approved by this Conference, recognizes it as absolutely essential that railways should adopt the necessary measures to facilitate the international transportation of passengers and luggage with rapidity and comfort. For this purpose it recommends the introduction of services with through tickets, and, as far as possible, with through carriages.

Now, before the war, such trains were organized, as at present, by the Compagnie des Wagons-Lits; but their terminus was not Vienna; they went on to Bucharest and even beyond, as far as our great port of Constanza.

II.

RIVER NAVIGATION.

A. Waterways and River Ports.

Roumania possesses about 2,840 km. of navigable waterways, the most important being the main stream of the Danube, 1,075 km.; its minor branches. 395 km.; and its principal tributories, the Pruth, the Dniester, the Mures and the Bega Canal, 1,370 km.

On the main stream of the Danube there are 36 ports at distances varying from 20 to 80 km., the names of which are as follows: Bazias, Moldova, Drencova, Lubotina, Orsova, Varciorova, Turnu-Severin, Gruia, Cetatea, Calafat, Bistret, Bechet, Corabia, Turnu-Magurele, Zimnicea, Giurgiu, Oltenita, Turtucaia, Silistra, Calarasi, Ostrov, Oltina, Cernavoda, Harsova, Gura-Ialomitzei, Macin, Braila, Galatz, Reni, Isaccea, Tulcea, Sulina, Ismail, Chilia-noua, Chilia-veche, and Valcov.

Among these ports the most important are Galatz, Braila, Oltenitza, Giurgiu, Corabia, Calafat, Turnu-Severin, and Orsova.

For the construction and improvement of these ports Roumania spent, up to the beginning of the world war, about 120,000,000 lei.

These ports have been equipped with wharves, platforms, warehouses, landing stages, with gangway pontoons, railways, roads, winter docks and various mechanical installations to facilitate operations.

In the most-important ports, like Braila and Galatz, the Roumanian Government has expended large sums on building commercial docks,

including, besides other installations, docks with grain silos with a capacity of 25,000 tons.

Each of these docks, eight hectares in area, is directly connected with the Danube. On one side is a wharf 500 metres in length, other sides being formed by stone embankments from 1,200 to 1,400 metres in length, part of them provided with landing stages. Around each dock are nearly 20 hectares of platforms, on which are built about 10,000 square metres of transit and storage warehouses.

The corn warehouses, which are built of reinforced concrete, comprise silos in which 400,000 hectolitres of corn can be stored. Elevators and belt-transporters are used for storing grain. Special arrangements exist for loading boats from the silos.

The platforms are served by ten to eleven km. of railway, connecting with the principal lines from Galatz and Braila, as well as with those leading along the Danube to these ports.

In order to facilitate the handling of goods, the docks at Galatz are equipped with :

8 mobile cranes of 1,500 kg. each.
1 crane of 2,500 kg.
1 fixed crane of 10,000 kg.

And the docks at Braila with :

2 mobile cranes of 2,500 kg.
2 cranes of 2,500 kg.
1 bridge crane for coal.
1 fixed crane of 10,000 kg.

Finally, as accessory apparatus, the docks of Braila and Galatz are equipped with :

5 floating grain elevators.
1 floating dock of 2,400 tons, in two parts, for raising and repairing ships.
2 service tugs.
3 bucket dredgers.
5 barges with folding bottoms.

The funds which have been used for construction work in the Danube ports have been procured partly from State resources and partly by a tax of ½ % on the value of all goods imported and exported.

These works and plant, which were sufficient for normal traffic before the war, have become absolutely inadequate since then, owing to the invasion of the Roumanian ports by foreign produce.

The crisis in railway transport has largely contributed to the overcrowding of the warehouses and to all kinds of difficulties in operation.

The question of enlarging and perfecting the equipment of the ports is regarded by the Roumanian Government as one of the first importance.

For the two ports of Braila and Galatz alone, it is necessary to spend a sum of about 30 million lei in order to meet present requirements.

In addition to the above works, the Roumanian Government has, since the year 1890, carried out improvements on the navigable channel ; these include :

The removal of obstacles from the navigable channel (sunken boats, trunks of trees, etc.).

Dredging of sandbanks as they form.

Improvements at the points of confluence with the more important streams ;

Strengthening of banks undermined by the current, etc.

All this work has been carried out by means of special apparatus procured by the hydraulic service : bucket dredgers, tugs, barges, floating cranes, etc.

Workshops have been established specially for the repair and upkeep of this apparatus.

The Roumanian Government, being anxious to maintain the freedom of navigation on the Danube under good, assured and easy conditions for all flags, has not levied any dues to meet expenditure.

The result obtained has been the deepening of the navigable channel at difficult points at low water from 1.20 metres to 2 and even 2.20 metres.

In order to assure navigation, Roumania has organised a special service for the regular depth measurement. The figures for the levels and depths are published daily in hydrographic charts. Moreover, the channel is equipped with signals and luminous buoys.

Keeping always in view the desired improvements, the State has initiated a detailed study of the levels of the Danube, and has arranged for transversal profiles of the whole bed; these profiles are being fixed by benchmarks, which will serve for further work in connection with the study of the river system.

This work has been carried out as far as Corabia. Numbered charts have been made with level lines marking the depth of the river.

Finally, the kilometrage of the Danube has also been carried out from Galatz to Severin.

The works in our ports, particularly construction works, were greatly damaged during the war. Their repair commenced as soon as the enemy armies evacuated our territory, and probably in the near future we shall be able to restore pre-war conditions in the Danube ports.

However, the state of the navigable channel of the Danube remains unsatisfactory by reason of the great amount of wreckage which accumulated throughout its length during the war. The removal of these obstacles is one of the most important pre-occupations of the Roumanian authorities. Owing to the wreckage, the maintenance and buoying of the navigable channel have become a more difficult matter, requiring great effort and redoubled care.

After having re-installed and re-equipped the workshop at Giurgiu for the purpose of repairing the boats and floating apparatus damaged through the war, we have now at our disposal for this work :

6 bucket dredgers of a capacity of 100 to 600 cubic metres per hour.
6 tugs of 150 to 500 h. p.
3 steam launches.
10 barges (with folding bottoms).
4 transport barges.
2 floating cranes of 20 to 60 tons.
2 pontoons for raising wreckage, capacity 200 tons.
2 pontoons for raising wreckage, capacity 400 tons, in course of installation.
100 signalling buays, 30 of which are lighted.
2 complete sets of diving apparatus.
2 petroleum tanks.

The principal item in the programme of work that still remains to be done as regards the navigable channel of the Danube will be to obtain a minimum depth of 3 metres throughout its course, starting from Turnu-Severin.

In order to effect this, Roumania will increase her fleet of dredgers, tugs, and other floating apparatus sufficiently to excavate in time the banks forming in the low water.

The new equipment will be of sufficient capacity for work on a large scale and will be completely up to date.

The bulk to be dredged in order to obtain a minimum depth of three metres will probably reach the figure of 3 million cubic metres, and the cost will be about 15 to 16 million lei per year.

This deepening of the river will be effected not only by dredging but also by other work on the banks and in the bed of the river, especially by narrowing certain sections, building longitudinal dykes, jetties, damming less important branches, etc.

To assist in navigation, the present special Roumanian service of buoys and signals will be enlarged. The apparatus, boats and buoys which this service has at its disposal will be much increased, and all the buoys marking the navigable channel will be equipped with special apparatus to light the channel in order to make night navigation possible in all weathers.

In order to clear from the Danube the wreckage sunk during the war and scattered throughout the course of the river, Roumania has ordered special apparatus, that is to say, new floating cranes, elevator pontoons, pumps for refloating, etc., and at the same time efforts have been made to obtain the assistance of the salvage companies in order to complete these operations, so necessary to navigation, as quickly as possible.

The researches on the Danube which were undertaken long ago will be continued above Corabia, so that plans can be drawn up for the improvement of navigation by means of fixed constructions in the bed of the river.

The kilometrage and the levelling of the Danube which was begun some time ago will be resumed and continued throughout the course of the river, as well as above Severin.

As regards the ports, Roumania proposes in the first place to add to

the warehouses and mechanical equipment, so that goods can be more rapidly handled or stored, for at present all our principal ports, such as Giurgiu, Oltenitza, Braila, Galatz and Constanza, are encumbered with goods which have been sent to us in great quantities and piled up in these ports.

Moreover, our programme for improvements in the Danube ports includes a series of works specially concerning the ports of Braila and Galatz, among which we may mention :

The connection of the two present basins of Galatz by means of a canal which can also be used as a new commercial harbour, as well as the establishment between the ports of Braila and Galatz of a line of communication running parallel to the Danube, and, finally, the establishment at Galatz of a large free zone for the construction of large werehouses, the development of new industries, etc.

As all the ports in our new territory are distinctly inferior to the ports of the Old Kingdom, it will be necessary to construct new works and fit them for traffic as soon as possible.

In constructing new ports, we are paying due attention to the economic development of the country.

Special mention should be made of the works which will have to be constructed on the rapids between Moldova and Severin.

The work which was done on this difficult portion of the river by the Hungarians is far from satisfactory, and in consequence of a mistaken idea of the principles to be adopted in order to render this section navigable, the following effects, which are by no means favourable to navigation, have been produced.

In the Iron Gates Canal (1,700 metres) the rapidity of the current varies with the level from 2 metres per second to 5 metres per second.

With a level of 5,50 metres at Orsova, a tug of 500 to 600 h. p. can draw a barge (schlep) with 600 to 700 tons load, and a steam tug of 1,000 h. p. can draw 2 schleps of 600 to 700 tons each through the old waterway parallel to the canal.

With a level of only + 3 metres at Orsova, a tug of 700 to 800 h. p., can take a schlep of 150 tons load, and a tug of 1,100 h. p. can take 2 schleps of 400 to 560 tons each, through the canal itself.

In the " Gazane " the rapidity of the current varies between 1,60 m. and 4 metres per second, and in the " Greben " the current is almost as swift as at Iron gates.

In these circumstances it may be said that navigation is seriously hindered on the section Severin-Moldova, and that in order to remedy this the work already carried out must be re-executed on different principles in order to reduce the abnormal speed of the current in these sections and also to assure a sufficient depth for navigation at low water.

Apart from the navigable channel of the Danube, Roumania will also undertake work which is equally urgent for the improvement of navigation on the Pruth, the Dniester and the other inland rivers, as well as the construction of a large and navigable canal to connect the capital with the Danube.

As regards repair and other urgent work for the hydraulic service (upkeep of the navigable way and the Danube ports, including the Galatz and Braila docks) these will involve an expenditure of about 500,000,000 lei.

B. River Fleet.

The foreign trade of Roumania, a country pre-eminently agricultural, underwent great development before the war owing to the increase in its grain production.

Roumania is watered throughout by a natural navigable waterway—the Danube—which, as a means of communication, contributed in a great measure to the development just mentioned, especially since the European Commission on the Danube Mouth and the Roumanian technical authorities have improved the navigable conditions of this great artery.

Before the war, at a quite recent date, almost the whole of the traffic of the Lower Danube was under the control of the old Austro-Hungarian Monarchy.

The political and economic evolution of the riparian States resulted in a division of this control among several States, in consequence of their participation in the Danube commerce.

The six following groups are engaged in this commerce under their own national flags :

1. The Austrian Navigation Company, known as the D. D. S. G.
2. The Hungarian Navigation Company, known as the M. F. T. R.
3. The Roumanian River Navigation Company (N. F. R.).
4. The South German S. D. Navigation Company.
5. The Russian Navigation Company.
6. The Serbian Navigation Company.

1. *The Austrian Navigation Company (D. D. S. G.).*—The importance of the oldest navigation company, the D. D. S. G., declined with the establishment of the principles of freedom by the Treaty of Paris of 1856. The losses which it suffered were compensated by State subsidies from the former Monarchy.

Before the war the company had 134 steamboats and tugs with a total registered h. p. of 58,365.

851 barges of a total capacity of 442,249 tons.

The number of passenger boats was 45, representing a total horse power of 19,920.

The total value of these vessels amounted to 90 million francs.

This company maintained regular passenger and goods services between Regensburg and Soulina.

The approximate gross annual revenue of this company was 21,500,000 crowns, while the annual expenditure amounted to 17,800,000 crowns.

The annual surplus over expenditure was approximately 3,500,000 crowns. Moreover the company received subsidies from the State amounting to 1,200,000 crowns annually.

The proportion between the annual surplus and the capacity of the transport vessels was 8,65 lei per barge ton.

The proportion between the amount of goods transported annually and the total capacity of the vessels was 5,03 tons of goods per barge ton.

Finally, the kilometre-tonnage per barge was 2,572 annually.

2. *The Hungarian Navigation Company M. F. T. R.*—This company was established on the Danube in 1895 with a capital of 20 million crowns, and, in view of its political and commercial objects, received from the Hungarian Government an annual subsidy of 60,000 to 100,000 crowns as well as other advantages.

The company's fleet consisted of 14 passenger ships of 5,650 total h. p.

48 steam tugs of 18,900 total horse power.

262 barges of 139,196 tons total capacity.

The approximate gross revenue of this company was 8 million crowns, while its expenditure amounted to 6,800,000. A surplus remained of approximately 1,200,000 crowns.

The proportion between this surplus and the total capacity of the transport vessels was 9,03 lei per barge ton.

3. *Roumanian River Navigation Company (*N. F. R.*).*—This company was founded in 1890 under a contract between Serbia and Roumania, by which the latter country agreed to supply, and transport to Serbia, salt from its mines.

This navigation company developed rapidly under the auspices of the State, and very soon took its place among the principal navigation companies on the Danube.

Its fleet consists of 14 passenger boats, 23 tugs, 119 barges on the Danube, 23 barges on the Pruth, 12 tanks and 4 landing pontoons—a total tonnage of 96,364 tons and a registered horse power of 15,880.

The present value of this fleet is approximately 200,000,000 lei.

The normal traffic before the war was 340,000 passengers and 500,000 tons of various goods, of which 150,000 tons were goods in bales and 350,000 tons were goods in bulk, such as grain, timber, coal, ore, salt, petroleum products, etc.

After the war, that is to say in 1920, the passenger traffic amounted to 1,062,000 persons ; the goods traffic amounted to 200,000 tons of various merchandise, of which 60,000 tons were in bales and 140,000 tons in bulk.

It is thus clear that the passenger traffic has increased, while the goods traffic has decreased owing to the cessation of export.

The gross annual revenue of the Roumanian River Navigation Company before the war was approximately 3,700,000, whilst expenditure amounted to 3,000,000 lei.

After the war, in 1920, gross revenue amounted to 30,000,000 lei and expenditure to 24,000,000.

The proportion between the annual surplus and the total transport capacity was 10,68 lei per barge ton.

The average of kilometre-tons carried annually was 2.436 per barge ; and the proportion between the quantity of goods carried annually and the total capacity of the transport vessels was on an average 5.24 tons of goods per barge ton.

The co-efficient of operation of this fleet was therefore very high ; this was due to the perfect organisation of this company, which has agencies, warehouses, and various plant in all the Danube ports.

Another Danube navigation company, a private enterprise known under the initials S. R. D., was founded before the war with a capital of 7,200,000 lei and a fleet comprising 60 schleps of 75,000 tons, 4 steam tugs, 2 tanks, 4 elevators.

After the war, it developed considerably, the capital being raised to 30,000,000 lei, which is noon to be further increased to 45,000,000. Its fleet comprises today 80 schleps of 100,000 tons, 11 tugs of 3,100 horse power, 10 tanks, 4 elevators and 2 passenger boats which are being purchased.

The traffic of this company was 150,000 tons, which it is hoped will be doubled when its fleet is completely repaired.

4. *The South German Company.*—This company carries on operations on the Lower Danube. It possesses no passenger boats and had, before the war, a fleet composed of 99 barges of a total capacity of 63,773 tons, and 11 tugs of 6,000 registered horse-power.

The gross revenue of this company was approximately 2,000,000 marks and the expenditure was 1,500,000.

This company received no subsidies.

The proportion between the annual surplus and the total capacity of the transport vessels was 9.60 lei per barge ton.

In addition to the four powerful groups mentioned above, there also existed before the war a Russian navigation company and a Serbian company.

The Russian company appeared on the Danube in 1847, to disappear soon afterwards and re-appear again in 1877 under the name of Société Gagarin. Later, it amalgamated with another Russian navigation company carrying on a service between Odessa and Belgrade.

Its fleet consisted of 4 passenger ships, 120 barges, 18 petrol tanks.

Finally, we must mention the Serbian Navigation Company, which operated only in the Save and on the Danube, between Radujevatz and Vienna, that is to say, on the Middle Danube.

Besides the navigation companies properly so-called as mentioned above, there are more than 300 shipowners on the Danube, mostly of Greek nationality, with a fleet of approximately 500 barges and of 500,000 total tonnage.

Before the war there were in all on the Danube :

428 steamships with a total horse power of 137,000 and 2,479 barges of a total capacity of 1,200,000 tons.

The annual number of vessels entering and leaving Roumanian and Danube ports was from sixty to seventy thousand.

The total traffic on the Danube both as regards river and sea-going vessels amounted to twenty-three or twenty-four million tons.

Twenty-two per cent of the total tonnage, twenty-nine per cent of the total coal carried, thirty-four per cent of the total number of vessels, and sixty-six per cent of the passenger traffic was under the Roumanian flag.

The river traffic, amounting to 14,000,000 tons, was distributed before the war as follows:

Bavaria	433,000 tons	
Bulgaria	669,000 tons	(in 1910)
Austria	2,590,000 tons	(in 1912)
Hungary	5,094,000 tons	(in 1913)
Roumania	5,837,000 tons	(in 1910)

The number of vessels (tugs, barges, tanks, pontoons, launches, passenger boats, elevators, war vessels, dredgers, etc.) sunk in the Lower Danube during the war was approximately 250, with a tonnage of about 150,000 tons.

The problem with which Roumania is faced, to restore normal conditions of navigation and to develop navigation to the requisite extent, will be solved by increasing the fleet of the Roumania River Company; this will involve an expenditure of about 250 millions.

The present rates for merchandise transported on the Danube are ten times greater than the pre-war rates, whilst the rates for cereals are 20 to 25 times greater than the pre-war rates.

After the war, the only navigation companies which were able to operate were the N. F. R. (Roumanian River Navigation Co.) the S. R. D. (Roumanian Danube Company), the Lloyd Triestin and the Serbian Navigation Company. The Inter-Allied Danube Commission also had a certain number of tugs and barges engaged in commercial traffic on the Danube.

Fuel.

Before the war, the boats of the Roumanian River Navigation Company consumed annually 15,000 tons of petroleum residue (mazout or pacura) or approximately, 1 ton of fuel per steam h. p. per year.

The calorific power of this fuel is 11,000 calories.

The petroleum was of native origin and cost, on the average, 35 lei per ton.

Since the end of the war, the annual consumption of the N. F. R. boats has been:

12,000 tons of native "pacura", the price of which has varied from 550 lei to 820 lei per ton, which represents an increase of about 2,000 per cent compared to the pre-war price, and 3,500 tons of coal, also of native origin, the price of which varies from 500 to 1,500 lei per ton.

The total consumption of fuel by all the river vessels and plant on the Danube may be estimated at 150,000 tons of pacura, 50,000 tons of coal from the riparian countries and 50,000 tons from other countries.

Financial Situation.

A sum of 20,000,000 lei, representing the expenditure necessary to put the present fleet into good condition and to complete the equipment of the passenger boats, is required to meet the immediate needs of Roumania's river navigation service.

In order to carry out the programme for increasing the river-fleet of the N. F. R. within 5 or 6 years, about 220,000,000 lei will be required.

Recapitulation of the Roumanian River Fleet, and Financial Situation.

A.—For the upkeep and buoying of the navigable channel of the Danube, Roumania possesses:

(a) 6 bucket dredgers of 100-600 cu. metres capacity per hour.
(b) 6 tugs 150-500 h. p.
(c) 3 steam-launches.
(d) 10 barges (folding).
(e) 4 transport barges.
(f) 2 floating cranes of 20 and 60 tons capacity.
(g) 2 pontoons equipped for raising wreckage, of 300 tons capacity.
(h) 2 pontoons, in process of installation, of 400 tons.
(i) 100 signalling buoys, 20 of which are luminous.
(j) 3 complete divers outfits.
(k) 2 petroleum tanks.
(l) 20 landing pontoons with metal foot-bridges.

B.—For working the docks of Braila and Galatz:

(a) 13 mobile cranes of 1,500 to 2,500 kg. capacity each.
(b) 1 bridge crane for coal.
(c) 2 fixed cranes of 10,000 kilogrames each.
(d) 5 floating grain elevators.
(e) 1 floating dock of 2,400 tons for the repair of ships.
(f) 2 service tugs.
(g) 5 barges (folding).
(h) 2 bucket dredgers for maintaining the proper depth in the basins.

C.—For river traffic.

1. *State Service.*

(a) 14 passenger boats.
(b) 23 tugs.

(c) 119 barges for transport in the Danube.
(d) 23 barges for the Pruth.
(e) 12 tanks.
(f) 4 landing pontoons
the whole representing a tonnage of 96,364 tons and 15,380 registered horse-power.

2. *The Roumanian Danube Company.*

(a) 80 barges of 75,000 tons.
(b) 11 tugs of 3,000 h. p.
(c) 2 tanks.
(d) 4 elevators.

3. *Private River Services.*

(a) 500 barges of 500,000 tons.
(b) 60 tugs of 23,000 h. p.
(c) 34 elevators.

The total traffic in the Roumanian ports before the war amounted to about 5,000,000 tons.

If to this is added the traffic in the ports which accrue to Roumania with the increase in her territory, it may be expected that future traffic will increase at least 50 %.

In order to estimate the fleet of river craft which we shall require for our probable traffic, we have taken the provisional figure of 7 million tons per year.

In order to deal with this probable traffic of 7 million tons, Roumania ought to possess 2,000 barges of 700 to 800 tons each, presuming that 1 barge could carry 3,500 to 4,000 tons annually in five trips, according to the conditions of the Danube system.

According to the above calculations, therefore, the h. p. of the tugs necessary should be :

$1/10 \times 2000 \times 700$ tons $= 140,000$ h. p. (steam).

As the present fleet is about 700,000 tons and of 32,000 h. p., including captured vessels, for future traffic on the Lower Danube, the following new tonnage will be required :

1,400,000 — 700,000 = 700,000 tons.
140,000 — 32,000 = 108,000 h. p., or
1,000 barges of a capacity of 700 tons each and
300 tugs with 108,000 total h. p.

The total cost, at present prices, of the fleet of river craft required to complete the fleet already in existence on the Lower Danube will be about 1,500,000,000 lei.

For the upkeep and improvement of navigation in the navigable channel, as well as in the port and docks, and for new constructions and the equipment of river ports, a further sum of about 500,000,000 lei is required.

In order to meet the requirements of the river traffic which may be foreseen for the near future, for the up-keep of the navigable waterway of the Lower Danube and to complete the equipment of the river ports, about 2,000,000,000 lei will be required.

III.

MARITIME NAVIGATION.

A. Ports.

Roumania is connected with the Black Sea by the mouths of the Danube and by several sea-ports, the most important of which is Constanza.

The other ports, Mangalia, Cavarna and Balcic are worked in a primitive manner ; they have no plant and are not connected with the rest of the country by rail.

On the Black Sea coast, Roumania has installed light-houses at Bugaz, Sulina, at the mouth of the St. George arm of the Danube, at Constanza, Tuzla, Mangalia, Sabla and Caliacra.

Port of Constanza.

This port, which is of recent construction, is connected with the rest of the country by a railway which crosses the Danube and its branches at Cernavoda ; the engineering works carried out to effect this crossing are certainly of a monumental nature and may be regarded as among the greatest technical achievements in Europe.

More than 100,000,000 lei were spent on building and equipping the Port of Constanza.

The area of the protected basins in this port is 60 hectares; its quays are more than 4,300 metres long.

The minimum depth of water in the basins is 8 metres, except in the petroleum basin, where it is 9 metres.

The area of the platforms upon which goods may be unloaded is nearly 7 hectares ; the goods warehouses cover more than 10,000 sq. metres.

So far, this port does not possess special equipment for import purposes as the chief object in view has been the export of cereals and of the petroleum products of the country.

The plant constructed for this purpose and in use for more than ten years includes :

(a) Two silos for the storage of grain, capacity 30,000 tons each.
(b) a complete installation for receiving and warehousing petroleum products and discharging them into tank ships.

The present plant is still insufficient for the traffic of the port, so that room cannot be found in the warehouses for some of the goods which have arrived from abroad, and which are therefore exposed to the weather ; this accumulation is due to the war, that is to say, to the scarcity of rolling-stock and the interruption of the rail connection between Constanza and the rest of the country.

This interruption was caused by the destruction of a part of the bridge over the Danube at Fetesti during the war; even now, trains have to be transported from one bank of the Danube to the other by ferry-boats.

This bridge will, however, soon be rebuilt.

The programme required to enable our sea-ports to cope with the needs of the country includes, in so far as the port of Constanza is concerned :—

(1) Repairs and improvements, apparatus to maintain the depth of the basins, modern equipment for the quays ; this involves in all an expenditure of about 60 million lei.

(2) Increasing the capacity of the port of Constanza and improving other maritime ports : the cost of this work will amount to 400 million lei.

To sum up, we may say that, in order to adapt the sea-ports of Roumania to the requirements of the country, an outlay of nearly half a milliard lei will be necessary.

In addition to the work of improving the commercial ports, provision will have to be made for the construction of a naval port on the Black Sea ; this will involve a supplementary expenditure of about 100 million lei.

Traffic, Railways.—Before the war, the following trains were run on the railway connecting the port of Constanza with the rest of the country :—

Two passenger-trains per day ;
Two fast trains per day ;
Two express trains, three times a week ;
10-15 goods-trains per day.

At present there is only one passenger-train and one goods-train running daily on this line.

The petroleum districts of the country are connected with the receiving plant at the port of Constanza by a pipe-line with a flow of 25 cubic metres per hour.

Maritime Shipping Lines.—Before the war, the principal navigation companies with agencies at Constanza were as follows :—

1. *Mail Boats.* — Roumanian Maritime Service, Società Italiana di Navigazione Maritima, Austrian Lloyd, Compagnie Fraissinet, Deutsche Levante Linie, Messageries Maritimes, Adria (S. & W. Hoffman).

2. *Trading Vessels.* — Roumanian Maritime Service and Johnston Line.

Since the war, the number of companies whose boats touch at the port of Constanza has been increased by the following :—

Swenska Orient Linien, America Levant Line (London), Cunard Line (Liverpool and London), Ellerman and Buckhall Steamship Co. Limited (Liverpool), Furness (Johnston Line), James Moos & Co. (Liverpool), Westcott Line (London), American Line (New York and Southampton), Anglo-Saxon Petroleum Co. (London), Oriental American Line, Export Steamship Co.

3. *Operation.* — The figures for commercial traffic in the port of Constanza before the war are as follows :—

Imports (average of years 1910-1915) 170,000 tons.
Exports (average of years 1910-1915) 1,200,000 tons.

After the war, that is to say, during the year 1919-1920, imports amounted to 67,000 tons, and exports to only 13,000 tons.

The average gross revenue derived annually from customs duties and the handling of goods before the war was 9,000,000 lei ; annual working expenses varied from 1,500,000 lei to 1,800,000 lei.

After the war, that is to say, during the year 1919-1920, the gross revenue amounted to 11,000,000 lei and working expenditure to 5,500,000 lei.

The number of vessels which entered the port of Constanza annually before the war averaged 1,000 ; the number leaving was almost the same.

During the year 1920-1921, the number of vessels entering fell to 920.

Fuel.

Two kinds of fuel are used in working the plant in the port of Constanza — the petroleum products of the country, and foreign coal.

The amount consumed annually is 1,500 tons of petroleum products, and 400 tons of coal.

The price of liquid fuel (pacura) before the war was 35 lei per ton, whilst the price to-day is 550 lei ; the price of coal, which used to be 30 lei per ton, is to-day 1,400 lei.

B. Navigation.

As the Danube is accessible to sea-going vessels for 170 km. from its mouth, an important trade is carried on in this portion of the river through the ports of Sulina, Tulcea, Galatz and Braila.

It is to be noted that through the Sulina mouth alone, more than 5,000 Roumanian and foreign vessels enter and leave annually, with an average annual tonnage of 2,000,000 tons.

Roumania's sea-going passenger and goods service consists of :—

6 cargo-boats of 3,500 tons 2 » » 7,000 »	Totalling 35,000 tons.

and 3 passenger and goods boats of 4,500 tons 1 » » » » » 3,600 » 1 » » » » » 2,100 » 1 » » » » » 2,500 »	Totalling 21,700 tons.

The last-mentioned are very fast boats, and, before the war, were on the Eastern line, Constanza-Constantinople-Alexandria (Egypt).

The cargo-boats carried goods between Roumania and different foreign ports, including Rotterdam, which was the principal market for our grain.

At present, the passenger and goods boats ply regularly between Galatz-Constanza-Naples, and between Constanza and Constantinople.

The traffic carried by these boats before the war amounted to :—

86,680 passengers in 1913-1914, 32,000 tons of goods by fast boats, 256,000 tons of grain and other goods.

The traffic to-day is reduced to 41,650 passengers in 1919-1920, 39,000 tons of goods by fast boats, 134,926 tons by cargo boats.

The pre-war rates averaged 10 lei per ton for the mailboats on the Galatz-Alexandria route and 13 lei per ton for cargo-boats (Galatz-Rotterdam).

After the war, goods rates were increased, and reached :—

(a) 260 lei per ton for mail-boats (Galatz-Naples) ; *(b)* 500 lei per ton for cargo-boats (Galatz-Atlantic) whilst the passenger rates were nearly 28 times the previous rates.

Roumania proposes in the future to increase her fleet by : (*a*) 5 fast steam-ships to extend the Galatz-Naples route as far as Marseilles, and to re-establish communication with the Orient, by resuming Constanza-Alexandria service ; (*b*) 5 cargo-boats of 6,000 tons ; (*c*) 3 petroleum tank ships of 3,000 to 5,000 tons.

The total cost of the boats comprised in these proposed additions will be about 2 milliard lei, at the rate of 200 lei to the pound sterling.

Fuel.

Before the war, the S.M.R. boats consumed coal and pacura in the following quantities :—

18,960 tons of coal annually; 31,200 tons of pacura annually.

The cost of the coal was about 31 lei per ton; of pacura, about 32 lei.

The S.M.R. boats use the same fuel now but in different quantities: 23,170 tons of foreign coal at 700 to 1,400 lei per ton. 23,000 tons of native pacura at 120 to 550 lei per ton.

IV.

AIR AND MOTOR TRANSPORT.

A. Air Transport.

Introduction. — Civil aviation in Roumania is administered by the Aviation Department of the Ministry of Communications.

This Department was instituted in July, 1920.

Up to the present, there are no air ports for civil aviation.

The Department of Civil Aviation has drawn up a general scheme for the organisation of civil aviation in Roumania. This scheme will be carried into effect as necessity arises.

The scheme provides for :

(*a*) Building sub-structures ;

(*b*) Operation ;

(*c*) The construction, fitting up and operation of factories for the manufacture of equipment for air navigation ;

(*d*) The training of a staff of pilots, expert engineers, mechanics, etc., in a special school.

Proposed Air Routes. — The length of the home air routes will be approximately :

For the permanent system	2,200 km.
For the summer system an addition of	1,000 km.
Total.	3,200 km.

The expenditure for the proposed work is estimated as follows :—

For building and equipping air-ports	250,000,000 lei
For building and fitting up an aeroplane factory . .	75,000,000 »
For building and equipping the school	10,000,000 »
Total.	335,000,000 lei

The annual expenditure is estimated at:

For operating the routes (1,712,000 km. flying) . .	75,000,000 lei
For the school.	3,000,000 »
Total.	78,000,000 lei

The details of these expenses are given in Annex No. 1.

At the moment, the following air-ports are being organised:

Bucharest, Galatz, Chisinau, Craiova.

Plans have also been made for the organisation of relief stations between the principal ports.

The organisation will conform with the most recent standards of modern aeronautics and with the air Convention of Versailles.

The aeroplanes of the Franco-Roumanian Company of Paris will soon pass across Roumania, carrying mails, telegrams, parcels and passengers on the following routes.:

Prague-Vienna-Budapest-Belgrade-Bazias-Craiova-Bucharest-Constantinople, and will connect with the Paris-Strasburg-Prague-Warsaw service maintained by the same company.

The agreement signed with the Franco-Roumanian Company is for twenty years.

The maximum rates for the above-mentioned journey will be:

From Bucharest to	Passengers	Goods (for 1 kg. or fraction of 1 kg.)	Letters (for 20 gr. or fraction of 20 gr.)
Constantinople	500 fr.	5 fr.	2 fr.
Belgrade.	500 ,,	5 ,,	2 ,,
Budapest	1,000 ,,	10 ,,	4 ,,
Vienna	1,500 ,,	15 ,,	6 ,,
Prague	2,000 ,,	20 ,,	8 ,,
Strasburg	2,500 ,,	25 ,,	12 ,,
Paris	3,000 ,,	30 ,,	13 ,,
Junction at Prague: Warsaw	3,500 ,,	35 ,,	15 ,,
Junction at Prague: London	3,500 ,,	35 ,,	15 ,,

For the first five years, beginning from April 1st, 1922, the State grants the company a maximum annual subsidy of 6,500,000 lei: this works out at 32,500 lei for each complete Paris-Constantinople return journey.

This subsidy will only be paid for genuine and complete journeys, and then only if, at the end of the financial year, the dividend paid by the company is less than 10 per cent.

During the year 1921, a State air service will be inaugurated on the route Bucharest-Galatz-Chisinau.

A sum of 4,500,000 lei is estimated for the organisation of this route. The details of expenditure are shown in Annex No. 2.

Traffic. — At present there is no traffic.

Fuel. — Roumania can provide the necessary spirit (benzine) at a cost of 2 lei per kilogram for home consumption, and at an average of 7 lei per kilogram for foreign consumption (export).

Conditions of Transit and Customs. — For air transit, rules will be adopted in conformity with Articles 9 and 12 (Air Transit), Annex H, of the Convention of Versailles for the Control of Air Navigation (October 13, 1919):

ART. 9. — Aircraft landing in foreign countries are, in principle, liable to customs duties if such exist.

If they are to be re-exported, they shall have the benefit of the regulations as to permit by bond or deposit of the taxes.

In the case of the formation between two or more countries of the Union of Touring Societies, the aircraft of the said countries will have the benefit of the regulations of the "Tryptique".

ART. 12. *(Air Transit).* — When an aircraft to reach its destination must fly over one or more contracting States, without prejudice to the right of sovereignty of each of the contracting States, two cases must be distinguished :—

1. If the aircraft neither sets down or takes up passengers or goods, it is bound only to keep to the normal air route and make itself known by signals when passing over the points designated for such purpose.

2. In other cases, it shall be bound to land at a customs aerodrome, and the name of such aerodrome shall be entered in the log book before departure. On landing, the customs authorities shall examine the papers and the cargo, and take, if need be, the necessary steps to ensure the re-exportation of the craft and goods or the payment of the dues.

The provisions of paragraph 9 (2) are applicable to goods to be re-exported.

If the aircraft sets down or takes up goods, the customs officer shall verify the fact on the manifest, duly completed, and shall affix, if necessary, a new seal.

The following Customs aerodromes are to be established :

Bucharest, for the South and South-East ; Oradia Mare, for the West ; Cernauti, for the North ; Chisinau, for the East.

Until new arrangements are made, aeroplanes which pass over Roumania will be obliged to land if required, or to pass over the nearest of the above-mentioned aerodromes.

Laws and Regulations. — The law in force in Roumania concerning the establishment and navigation of air routes is given in Annex No. 2.

Regulations for inland air navigation are under consideration.

ANNEX No. I.

Cost of the Substructure for the National Air System.

(Pre-war Prices)

WORKS TO BE EXECUTED	Area or quantity	Cost per unit	Cost	
			Partial	Total
		Lei	Lei	Lei
I. *For a First-class Air-port.*				
(a) Expropriations:		Lei	Lei	Lei
Landing ground	120 ha.	1,000	120,000	
				120,000
(b) Buildings	—	—	—	1,350,000
(c) Equipment			—	730,000
Total	—	—	—	2,200,000
II. *For a Secondary Air-port.*				
		Lei	Lei	Lei
(a) Expropriations.	120 ha.	1,000	120,000	
				120,000
(b) Buildings	—	—	—	750,000
(c) Equipment		—	—	730,000
Total	—	—	—	1,600,000
III. *For a Relief Station.*				
		Lei	Lei	Lei
(a) Landing ground	50 ha.	1,000	50,000	
Buildings and Equipment . . .	—	—	50,000	
Total	—	—	—	100,000
Carried forward				3,900,000

ANNEX No. I *(continued)*.

WORKS TO BE EXECUTED	Area or quantity	Cost per unit	Cost	
			Partial	Total
Brought forward				3,900,000
IV. *For Routes.*				
1. PERMANENT ROUTES.				
(a) The Bucharest-Oradia-Mare Route (connection with the West.)				
First-class Ports :				
Craiova, Temisoara, Oradia-Mare.	3	2,200,000	6,600,000	
Turnu-Severin and Arad. . . .	2	1,600,000	3,200,000	
Relief Stations	8	100,000	800,000	
				10,600,000
(b) The Bucharest-Giurgiu Route (connection with the Balkans.)				
Secondary Ports :				
Giurgiu.	1	1,600,000	1,600,000	
Relief Stations.	1	100,000	100,000	
				1,700,000
(c) The Bucharest-Constantza Route (connection with the Black Sea Ports.)				
First-class Ports :				
Constantza	1	2,200,000	2,200,000	
Relief Stations.	3	100,000	300,000	
				2,500,000
(d) The Bucharest-Cernauti Route (connection with Poland.)				
First Class Ports :				
Jassy and Cernauti.	2	2,200,000	4,400,000	
Secondary Ports :				
Tecuci	1	1,600,000	1,600,000	
Relief Stations.	8	100,000	800,000	
				6,800,000
Carried forward				25,500,000

ANNEX No. I *(continued)*.

WORKS TO BE EXECUTED	Area or quantity	Individual cost	Cost	
			Partial	Total
Brought forward				25,500,000
(e) The Bucharest-Galatz Route (connection with the Ukraine)				
First-class Ports:				
Galatz	1	2,200,000	2,200,000	
Secondary Ports:				
Braila	1	1,600,000	1,600,000	
Relief Stations	5	100,000	500,000	
				4,300,000
(f) The Galatz-Chisinau Route				
First-class Ports:				
Chisinau	1	2,200,000	2,200,000	
Relief Stations	3	100,000	300,000	
				2,500,000
2. THE ROUTES FOR SUMMER SERVICES.				
(a) The Bucharest-Brasov Route				
Secondary Ports:				
Brasov	1	1,600,000	1,600,000	
Relief Stations	2	100,000	200,000	
				1,800,000
(b) The Bucharest-Cluj-Oradia-Mare Route.				
Secondary Ports:				
Pitesti, Sibiu and Cluj	3	1,600,000	4,800,000	
Relief Stations	5	100,000	500,000	
				5,300,000
(c) Galatz-Sibiu Route.				
Relief Stations	4	100,000	400,000	
				400,000
(d) Bucharest Air Port.	1	2,200,000	2,200,000	
General total. . .	—	—	—	42,000,000

At present prices the total must be reckoned at 250,000,000 lei.

Budget of Operating Expenses.

Length of permanent routes		2,200 km.
Length of summer routes		1,000 »
Number of days' flight (permanent routes) :		
Post	260	
Passengers	70	
Number of days' flight (summer system) :		
Post	100	
Passengers	30	
Annual kilometrage :		
Postal aeroplanes 2 × 2,200 × 260 + 2 × 1,000 × 100		1,344,000 km.
Passenger aeroplanes 2 × 2,200 × 70 + 2 × 1,000 × 30		368,000 »
Life of aeroplanes :		
Postal aeroplanes unfit for service after approximately		20,000 »
Passenger aeroplanes' unfit for service after approximately		30,000 »

Number of aeroplanes which will be unfit for service, including machines disabled by accidents :

Postal aeroplanes . . . $\frac{1.2 \times 1,344,000}{20,000}$ . . . . . 80 aeroplanes

Passenger aeroplanes $\frac{1.2 \times 368,000}{30,000}$ . . . . . 15 »

The present cost of an aeroplane, including spare parts, upkeep and repairs, until the aeroplane is unfit for service :

Postal aeroplane 300-400 h. p.	300,000 lei.
Passenger aeroplane 800-1,000 h, p.	700,000 »
Total present cost of aeroplanes :	
Postal aeroplanes 80 × 300,000	24,000,000 »
Passenger aeroplanes 15 × 700,000	10,500,000 »
Total.	34,500,000 lei.

Annual consumption of spirit :

Postal aeroplanes	1,400,000 kgs.
Passenger aeroplanes	750,000 »
Total.	2,150,000 kgs.

Annual consumption of oil	215,000 kgs.	
Cost of fuel :		
2.10 × 2,150,000 + 15 × 215,000.	7,740,000	lei
Wages :		
Staff of air-ports (600 persons)	12,000,000	lei
Flying Staff :		
100 pilots + 100 mechanics	9,000,000	»
Auxiliary personnel	4,500,000	»
Total.	25,500,000	lei

SUMMARY.

Aeroplanes	34,500,000	lei
Fuel	7,740,000	»
Wages	25,500,000	»
Rolling stock and sundries	7,260,000	»
Total.	75,000,000	lei

Annex No. II.

Law regarding the Establishment and Operation of Air Routes.

Chapter I.

State Routes.

Article 1.—The State may establish and operate, in accordance with the laws and regulations in force, any air route whatsoever, whether for its own purposes or for the use of the public.

Article 2.—The construction, administration and operation of all air routes belonging to the State shall be carried out by the Ministry of Communications through its various departments.

Chapter II.

Concessions to Individuals.

Article 3.—Private persons, acting either as individuals or as companies, may establish and operate air routes for the service of the public, provided they have obtained the authorisation of the Council of Ministers. Holders of such concessions must conform in all respects to the terms of the present law, to its administrative regulations, to the conditions of their concessions, the regulations governing air traffic, and to all the laws in force.

Article 4.—The State may, in virtue of a decision of the Council of Ministers, grant concessions to private persons or companies for the operation of its air routes.

Article 5.—The State may, in virtue of a decision of the Council of Ministers, take part in the formation of air navigation companies in cases where the routes in respect of which concessions are demanded vitally affect the interests and defence of the country.

Article 6.—With a view to encouraging private enterprise, the State may, in virtue of a decision of the Council of Ministers, grant, to holders of such concessions, premiums, annual subsidies, annual amortisations and postal concessions to the prejudice of existing monopolies.

ARTICLE 7.—Applications for authorisation must be submitted to the Ministry of Communications, and must be accompanied by all the documents stipulated in the concession forms of the Ministry.

ARTICLE 8.—The Ministry of Communications shall submit every application to the Supreme Council on Communications, which will give a reasoned opinion upon it.

ARTICLE 9.—No application for establishment and operation of air routes will be considered unless it is accompanied by a Treasury receipt proving that the applicant has deposited for this purpose a guarantee of 200 lei for every kilometre of the route which it is proposed to operate. This deposit shall be returned when the route is in operation, but if the route is not in operation within the period stipulated in the concession, the concession may be withdrawn by the Council of Ministers. In such cases, the deposit and all existing works and equipment shall remain the property of the State without any indemnification whatsoever.

Communes, departments and companies associated with the State shall be exempt from this deposit ; the Council of Ministers may exempt from payment of this deposit companies which are already operating abroad.

ARTICLE 10.—When authorising the construction and operation of an air-route, the State shall also, by Royal Decree, declare all the necessary works to be public utilities. In addition to the powers of expropriation resulting from this proclamation as public utilities, the holders of concessions shall enjoy the advantages arising from the laws in force for the encouragement of industry.

ARTICLE 11.—The Ministry reserves the right to authorise air navigation on the same route at any time, within the limits of the rights which it reserved under the terms of previous concessions.

ARTICLE 12.—The duration of the concession for operating the route and the conditions of possible repurchase before the expiration of the concession shall be determined separately by the specifications laid down in each individual case.

ARTICLE 13.—On the expiry of a concession, all plant shall, *ipso facto*, become the property of the State without indemnification. Repurchase of flying machines shall take place in accordance with the provisions laid down in the concession.

ARTICLE 14.—Holders of concessions shall be bound to agree to the connection of their routes with other routes if the Ministry so decides.

ARTICLE 15.—The Ministry of Communications shall have the right of permanent control over all air undertakings in regard to technical and administrative and financial matters. The Ministry shall supervise the accounts, plant, personnel, and operation methods, and shall see to the strict application of the laws and regulations in force.

ARTICLE 16.—If there is reason to question the successful working of any service on account of defective stock or incompetence of personnel, the Ministry of Communications may suspend operation until the holder of the concession shall have carried out such improvements as may be required by the Ministry, and, if necessary, the Ministry may even annul the concession without granting any indemnification to the holder.

When granting any concession, the Ministry shall ask the advice of the Supreme Council on Communications.

ARTICLE 17.—In case of mobilisation or any other serious situation in time of peace the State shall have the right to take over and operate all routes which it may consider necessary to take over and operate in accordance with plans drawn up beforehand by the Ministry of War, acting in concert with the Ministry of Communications. In such cases the State must act in conformity with the law on requisitions and shall, in addition, grant an annual indemnity equal to the average receipts of the last three years of operation.

ARTICLE 18.—The State shall have the right on all routes to transport its personnel and goods. The specifications of each concession shall establish the conditions and the limits within which the State may make use of this right and the manner in which payment for such transport shall be made.

ARTICLE 19.—The rates provided for in the concession shall be considered as maximum rates and shall not be increased except with the consent of the Council of Ministers. Holders of concessions may not make any reduction in the rates in force, except in the cases provided for in the specifications or approved by the Council of Ministers.

ARTICLE 20.—Holders of concessions shall be bound to conform to the law concerning the organisation of trades credits and workmen's insurance in all matters relating to their employees, including pilots and navigators.

ARTICLE 21.—No route conceded may be assigned, nor may several routes be amalgamated without the authorisation of the Government. If a route is abandoned by a concessionary or other persons entitled, it shall, *ipso facto*, become the property of the State, without any indemnification. In such a case, the State shall have the right to purchase the aeroplanes. Should the holder of a concession become bankrupt or go into liquidation, the creditors cannot transfer the concession of the route to a new holder without the full sanction of the Government ; but they may continue to operate the route. Should the creditors not continue to operate the route or should they not be able to transfer the concession to another holder, the State may operate the route on behalf of the creditors.

ARTICLE 22.—Routes conceded in virtue of this law shall be public property.

Chapter III.

Final Provisions.

Article 23.—Administrative regulations shall furnish all necessary details for the application of the present law.

Article 24.—The present law shall come into force on August 1st, 1920. All provisions contrary to the law are, and shall remain, annulled.

The present law was voted by the Assembly of Deputies on August 23rd, 1920 and was passed by a majority of 117 votes to 3.

The present law was voted by the Senate on August 26th, 1920, and was passed by a majority of 71 votes to 1.

B. Motor Transport.

Before the war motor transport in Roumania was almost exclusively confined to touring and sporting cars. There were only a few motor-lorries, the majority of which belonged to the large landed proprietors and manufacturers, who used them for their own requirements.

Motor-tractors were beginning to be used in agricultural work.

Rail and animal transport was, moreover, less costly than motor transport.

Motor traction was more expensive for the following reasons:

(1) The insufficient number of capable chauffeurs.

(2) The lack of good repairing shops able to carry out all kinds of repairs.

These drawbacks existed before the war and continue to exist to-day; spare parts are harder to obtain owing to import difficulties, and, above all, to the great variety of models imported since the war.

During the war imports were null; the army had requisitioned, for military requirements, all vehicles belonging to private persons or to other State departments.

Owing to the difficult conditions under which these vehicles worked during the war, they were all completely ruined; in order to meet transport requirements which have arisen since the war, imports have increased, and, for the year 1919, in spite of the price, reached a total of 600 vehicles.

The development of motor transport in Roumania is favoured by the extensive production of petrol fuel.

The motor industry scarcely exists. We only possess one factory — the "Martha" factory at Arad, in Transylvania — which manufactures principally motor-lorries, and which now has a very restricted output.

In normal times this factory employed about 1,200 workmen, and possessed a plant of 320 machine-tools ; it was capable of turning out from 8 to 10 lorries per month. Since the war only repair work has been done there, and the number of workmen is very much reduced. Owing to the lack of animal traction, and the bad state of railway transport, the Government is contemplating the adoption of motor transport both on the roads and railways, but this question is still under consideration.

During the war the whole system of communications throughout the kingdom fell into ruin owing to the heavy military traffic and the neglect of upkeep.

Some of the roads are still in good condition and can be used for motor transport. In Transylvania and in the Banat the roads are in excellent condition, while in Bessarabia, where they have been severely damaged, traffic is extremely difficult. Statistics collected before the war show that, taking into account only the territory of the Old Kingdom, we possess in all 28,000 km. of metalled roads, and have 20,000 km. under construction.

The Royal Automobile Club has drawn up a list of the roads in the Banat and Transylvania, which have a total length of about 30,000 kilometres. This publication, entitled " Guide to the Roads of Greater Roumania ", is printed in French and in Roumanian, and contains :

(1) 25 coloured maps indicating all roads fit for vehicular traffic, as well as place names and situations.

(2) A map of the roads of Europe, with the distances in kilometres and the routes to the principal towns.

(3) Information useful to tourists.

(4) An alphabetical list of place names, with a key for finding them on the maps.

The condition of the wooden bridges, which have been temporarily repaired since the war, is no better than that of the roads, and large sums will have to be spent upon them before they will be fit to bear heavy vehicular traffic.

TABLE.

Year	1911	1912	1913	1914	1915	1919	1920
1. MOTOR-CARS IMPORTED.							
Kilogrammes	682,349	1,325,359	983,509	639,539	117,147	1,178,386	1,290,000
Number of cars	590	1,099	717	508	43	602	662
Value in lei	7,159,724	13,905,125	10,189,373	6,623,497	1,422,354	25,123,842	27,623,000
2. SPARE PARTS FOR MOTOR-CARS.							
Kilogrammes	40,711	81,456	54,267	44,478	7,783	56,668	62,200
Value in lei	814,220	1,629,120	1,085,340	888,560	194,575	1,993,435	2,194,000
3. OUTER AND INNER TYRES.							
Kilogrammes	141,902	203,310	262,274	191,195	269,755	236,880	260,000
Value in lei	1,277,118	1,829,790	2,360,466	1,720,755	5,395,100	28,426,320	31,250,000

The quantities for the year 1920 are approximate, as complete statistics are not yet to hand.

This table shows that since the year 1912 the number of motor-cars imported has decreased. This decrease is chiefly due to the Balkan War of 1913 and the European War in 1914.

Similarly, since the war, the expenditure on rubber tyres exceeds that on the vehicles themselves, this being due not only to the continued rise in the price of rubber but also to the more constant use of this class of vehicle, and the bad state of the roads.

Before the war, vehicles were imported from almost all the Western countries and from America.

Since the war American vehicles (particularly Fords) have arrived in greater quantities. The enemy countries have not up to the present sent us any motor-cars.

There are a few large import houses which import motor-cars, but there are very few private persons who order them directly from the factories. These firms also have their repair shops, one of which is very important, having a capacity of 50 machines and possessing an absolutely modern plant.

This firm is at present carrying out experiments on the railways with auto-trains drawing two or three waggons. These auto-trains are now running on two railways in the Old Kingdom. The firm has also recently established a passenger and goods service on the Bucharest-Brasov road.

This undertaking, however, does not pay because the motors are frequently damaged owing to the condition of the roads and to frequent accidents.

In order to cover the equipment expenses involved in a service of motor-lorries on the roads in Roumania, its rates must be at last 0.70 or 0.80 lei per person per kilometre and 2 lei per kilometre-ton for goods; actually the rates for goods are approximately three times higher.

Owing to the necessity for frequent repairs and the high cost of such repairs, numerous small repairing shops have sprung up in different parts of the town, the large repairing shops being too crowded.

But these shops, owing to their lack of modern plant and good workmen, turn out bad repairs.

From statistics furnished by the Prefecture of Police (Bucharest), the following table has been drawn up, which shows the number of motor-cars at present in the country :—

(1) Motor-cars officially registered at the Prefecture of Police, and used in the capital	2,122
(2) Non-registered and on sale in garages or under repair (all kinds)	1,000
(3) Military cars belonging to the Transport Corps throughout the country (all kinds.).	2,500
(4) Motor-cars in the departments and Provincial towns (all kinds)	1,500
Total	7,122

About one-third of these motor-cars belong to the State, the remainder being private property.

Accounts kept in the various Government Departments relating to the upkeep of motors-cars for the year 1920-1921 show that the cost of upkeep of a motor-car or lorry is from 60,000 to 70,000 lei per annum.

The price of motor-spirit since the war has varied from 1.60 to 2.20 lei per litre, and oil, according to quality, from 4 to 10 lei per kilo ; these are trade prices.

State taxation levied on motor-car owners are of two kinds : (1) Municipal taxes ; (2) fiscal taxes.

Municipal taxation makes a distinction between taximeters and private cars.

Taximeters are subject to a daily tax which is at present 20 lei per day, no distinction being made as regards the power or class of the engine, and private cars to a quarterly tax, which varies according to the horse-power of the engine and class of the vehicle. On an average, this tax varies from 500 to 1,500 per annum.

Fiscal taxes are of three kinds, according to the property tax paid by the owner and to the class of garage ; they vary from 1,000 to 3,000 lei under the new system of taxation.

Imports are effected in accordance with the regulation with regard to the customs documents required for the temporary importation of motor-cars on international tours.

The documents drawn up in 1913 by the International Congress of Automobile Clubs are as follows :—

(a) Books of customs passes enabling the holder to pass all customs offices in the countries traversed on long tour.

(b) Special forms (tryptiques) for frequent journeys between neighbouring countries which have adhered to this system of reciprocal guarantees.

The rules of traffic for motor-cars, which came into force in Roumania by the Decree of August 3rd, 1913, (amended on July 14th, 1914), were drawn up on the model of those approved at Paris by the International Association of Recognised Automobile Clubs (R.I.A.C.R.), and the conditions to be fulfilled by motor-cars before they may run on public highways are specified in the International Traffic Convention signed at Paris in 1909.

The Roumanian Royal Automobile Club is the only organisation recognised and affiliated to the International Association of Recognised Automobile Clubs, and it has established in Bucharest an official school for chauffeur-mechanics, which is carried on in accordance with a regulation proposed in 1910 by the Committee of Chauffeur-Mechanics and approved by the Prefecture of Police.

The Serb-Croat-Slovene State.

Owing to its geographical situation, the Serb-Croat-Slovene State is an extremely important centre of international communication. Owing to its situation and to the direction of its valleys, through which large navigable rivers flow, all the main international lines either from East to West or from North to South pass through its territory. The Serb-Croat-Slovene Kingdom therefore holds an exceptionally important position as regards international communication, and serves as a junction between the East and West and North and South.

The most important international lines, namely :

North America - London - Paris - India ;

North America - Atlantic Ocean (Bordeaux) - Black Sea (Odessa) ;

The Scandinavian countries - Berlin - Prague - Belgrade - Constantinople ;

Petrograd - Warsaw - Budapest - Belgrade - Salonica - Cairo

pass through the Serb-Croat-Slovene Kingdom. The most important European river, from an international point of view, namely, the Danube, and its tributaries, the Drave, the Tisza and the Save, which are all navigable waterways of considerable importance, and also the Morava and the Drina, pass through the Serb-Croat-Slovene Kingdom, the former from West to East and the latter from North to South.

These conditions prove the importance of the Serb-Croat-Slovene Kingdom from an international point of view, and make it a *transit country of the first importance.* If its varied and abundant natural resources, its picturesque scenery and its favourable climate are also taken into consideration, it is easy to understand the importance of the kingdom both from the general political and economic point of view and also owing to its position as a boundary country between East and West.

I.

RAILWAYS.

General Remarks.—Properly speaking, there are at the present time no railway systems in the Serb-Croat-Slovene Kingdom, but only railways. The reason for this is that the former Austro-Hungarian Empire, being desirous of keeping Serbia quite separate from her kinsmen under Austrian rule, did not permit Austrian lines to connect with those of Serbia, with the exception of the Belgrade line. For the same reasons, Austria-Hungary maintained a state of separation between the various Serb-Croat provinces under its rule and did not allow any connection between them. Moreover, the former Empire made all railways converge on its capitals, Vienna and Budapest, and for this reason the railways of our provinces which were under Austro-Hungarian domination run almost entirely from South to North. The centres of economic and political life were shifted after the peace, and the direction of communications changed with them ; the tendency is now towards a re-establishment of communications from West to East ; to this, Austro-Hungarian policy had been opposed.

As regards Serbia in particular, the state of political and economic isolation in which she was kept by the former Austro-Hungarian Monarchy, the lack of capital in the country, and the considerable difficulties arising from her geographical conformation, have been serious obstacles to the development of the railway system.

The first railway line in Serbia, that from Belgrade to Nish, about 250 kilometres in length, was opened on September 3rd, 1884. Active economic expansion, together with the development of this system, only began about ten years before the world-war, when Serbia was beginning to free herself from the economic and political influence of the Central Empires.

The whole of the lines at present working in the Kingdom of the Serb-Croat-Slovenes are divided between the four local administrations, with headquarters at Belgrade, Serajevo, Zagreb and Soubolitza.

In Working.

(a) Normal- or narrow-gauge railways owned by the State or private companies, 7,955 kilometres.

(b) Departmental lines owned by private companies or for industrial purposes, 1,000 kilometres.

Under Construction or Proposed.

(a) Normal-gauge lines, 7,108 kilometres.

(b) Narrow-gauge lines, 2,351 kilometres.

I. Belgrade Administration.

A.—*In* 1914:

In 1914 Serbia possessed:

1. State Railways:

(a) Normal gauge:

In working	928 km.
In construction	537 km.
Proposed	1,385 km.

(b) Narrow gauge:

In working	454 km.
Under construction	128 km.
Proposed	1,299 km.

(c) Funicular railways:

In working	17 km.

2. Departmental Railways and Railways owned by Private Companies:

(a) Normal gauge:

In working	216 km.

(b) Funicular Railways:

In working	49 km.

The whole of the railways in Serbia were valued at pre-war prices as follows:—

(a) In working	Fr.	303,686,000
(b) In construction	»	49,014,000
Total	Fr.	352,700,000

The railways in Serbia are State-owned, with the exception of a very small part of the Departmental and privately owned railways. They are under State administration and are of a uniform type.

B.—*In November* 1918 *after the Armistice.*

(a) The Causes of Destruction.—The principal line is the Belgrade-Nish-Salonika, Nish-Constantinople, which follows the valley of the Morava and afterwards that of the Vardar. The whole of the military operations for the conquest of the Balkans were carried on in this direction, as well as the final Austro-Hungarian, German and Bulgarian invasions. The

importance of this principal line, from the point of view of military operations, arises from the fact that Serbia had no transversal line (having never been able to obtain one) to unite her with her kinsmen on the Western frontier ; such a line might have served, if necesssary, to relieve congestion on the principal line.

The enemy was scrupulously careful in the upkeep of this line as long as he required it, and systematically destroyed it when he realised that he could no longer make use of it.

(b) The Destruction Itself. — As regards the destruction, it was carried out mathematically in every respect. All the bridges, whether of stone or iron, even those that were extremely short, were mined and destroyed at the last moment of the retreat ; moreover, the armoured trains, when withdrawing, destroyed the track by means of heavy shell. All engineering works, embankments, ramps, protecting walls and approaches to tunnels were similarly destroyed by mines. The rails were mined at every second joint and destroyed by railway troops, so as not to leave a single rail intact throughout considerable distances. Points and turntables were removed or blown up with dynamite ; stations, stores, warehouses, loading platforms, water stations and reservoirs were ransacked and afterwards destroyed or burnt.

(c) State of Affairs after the Enemy's Retreat.—The enemy, alas, was entirely successful in leaving the Serbian railway system in a complete state of devastation after his retreat, but he did not secure his principal aim, which was to hold up the offensive of the Serbian and Allied Armies, and to save Austro-Hungary from defeat.

Owing to the rapid advance of the Serbian and Allied Armies and the necessity for placing the liberated territories under military control, Serbia was deprived of all military aid for the re-establishement of her railway system, and was left alone to deal with the numerous difficulties with which she was faced. Her male population was entirely mobilised for war purposes, deported, or else destroyed by the enemy ; the country had been devastated and pillaged during three years of occupation, and finally during the retreat ; all that still remained intact was delivered over to pillage, fire and destruction. Moreover, the Allies were far away, and there was no direct communication with them. The terms of the Armistice with Austria, Hungary and Bulgaria might to a certain extent have improved this state of affairs—and Serbia undoubtedly had a right to expect this — but they were drawn up under the first impulse of victory without the assistance of experts, and without a knowledge of facts and circumstances, and thus left Serbia in a desperate state, and caused her the most profound disillusionment.

In such circumstances, and after such sacrifices, it is evident that the repair of the whole railway system was a task of the utmost difficulty. The entire lack of means of communication, together with the prevailing poverty, might have given rise to serious troubles within the country and

have driven it into anarchy had the people not maintained an unshaken confidence in their allies, a profound faith in the justice of their cause, and that high *moral* which, in spite of trials and sufferings, led them to victory.

C. *Present Conditions.*

Railway communication has been re-opened on all lines. All bridges have been repaired provisionally by means of wooden constructions. The trains go very slowly, about 25 km. an hour, owing to the bad state of the lines, and only by day, it not having yet been possible to replace the signal system and telephonic communication. Moreover, the personnel is insufficient, and all the sleepers need replacing owing to their bad state.

Urgent Work Required.

(1) All the iron constructions, totalling about 12,000 tons, need replacing. These constructions were first ordered from England in June 1919, and when that country could not carry out delivery, half was ordered in Austria and the other half in Czecho-Slovakia. Unfortunately, delivery is taking place very slowly owing to economic difficulties and labour troubles in those countries. The pile-work of the bridges, which is at present of wood, must be replaced by permanent constructions of reinforced concrete. (2) Signals must be installed in all stations. (3) The rails in the stations themselves (for the moment only two lines of arrival and departure have been reconstructed) need to be re-laid. (4) Telegraphic and telephonic communication must be restored.

Future Work.

The execution of the programme of works to be undertaken in our now united country is seriously hindered and complicated by the fact that all of the work originally carried out by Austria-Hungary is in direct opposition to this programme.

The Austro-Hungarian Monarchy, as regards its railway policy, was always guided by the two following principles :—

(1) To isolate Serbia, firstly, from her kinsmen who were living under Austrio-Hungarian Government, and, secondly, from other nations.

(2) To make all railway lines in the territory of our Serb, Croat and Slovene kinsmen in the former Monarchy converge on Vienna and Budapest.

The programme of work now requiring execution is :

The final repair of all the lines in Serbia which at the present moment have, with much difficulty, been provisionally restored to working condition ;

The establishment in the Serb-Croat-Slovene Kingdom of a definite system corresponding with the needs of the country and connecting it with its great allies and friends of the present day. Both of these tasks are considerable ones, but our nation rightly believes that she will accomplish them – first, by virtue of her incontestable right to secure reparations from the enemy, secondly, thanks to the sincere collaboration and generous assistance of her allies and of friendly countries.

We may mention here some of the principal lines of an international character which it is proposed to construct in the near future. (1) The so-called "Adriatic" line from St. Jean-de-Medine-Scutari-Nish-Prahovo towards Bucharest-Odessa, which it has long been proposed to construct, and which is the longest line proposed, passes through Serbian territory; the second, Nish-Prahovo, had been completed shortly before 1914.

With a true realisation of its interests and those of all nations, Serbia has long been working for the accomplishment of the Atlantic-Black Sea line, over which at the present time the Simplon-Orient express passes. In 1904, in particular, Serbia passed a law for the construction of a line Belgrade-Pozarevatz-Brza, Palanka (Serbo-Roumanian frontier), and at the beginning of 1914 an agreement had been entered into with Roumania for the crossing of the Danube at Brza Palanka, and also to ensure connection with the Kraiova-Bucharest-Odessa line.

Belgrade-Serajevo-Adriatic Klek ow Spliet) line to connect the capital with the Adriatic and the countries beyond.

Rolling Stock.

The whole of the rolling stock which Serbia had been able to rescue during her retreat in 1915 was handed over by her to her allies at Salonika for their use. It was only finally restored to her in 1920 in a much-damaged condition.

The rolling stock taken by the Bulgarians was not restored until the end of 1920, and was in bad condition and much damaged.

Serbia was not fortunate in the question of rolling stock taken from Austria-Hungary.

At the time of the collapse of Austria-Hungary, the Austro-Hungarian authorities established in Serbia and other Serbian countries (Bosnia, Herzegovina, Dalmatia, the Banat, Bakka, Slavonia, Croatia) used the best rolling stock in their retreat for the evacuation of many officials' families, of their own families, and of stolen articles, private property and State property.

For this reason the Serbian Army only had the worst of the rolling stock.

Owing to these various special circumstances, the rolling stock possessed by our country is of the very worst quality and in very bad condition. The railway administration does not possess the exact figures regarding its rolling stock, but in any case there is a great shortage.

There are no means of carrying out repairs, as all the workshops have been destroyed or removed. Efforts are being made to have repairs executed in neighbouring countries, such as Austria-Hungary and Czecho-Slovakia, but many difficulties and delays have arisen, because, in addition to excessively high prices, all these countries require raw materials and food for the workers.

Production and Consumption of Coal.

All the mines in Serbia have been burnt or destroyed.

The usual cost of one ton of coal before the war was 10 dinars, and in 1920, 120 dinars.

Rates.

Immediately after the restoration of railway communications, which had been interrupted during the war, the rates for the transport of passengers and goods were increased. This increase in rates, as compared with pre-war prices, is :

(1) For first, second and third-class passengers	150 %
(2) For passenger luggage	170 %
(3) For goods :	
(*a*) Maximum rate for goods by express	200 %
(*b*) Minimum rate charged for coal and wood fuel . .	150 %
(*c*) Corn, wheat and fruit	700 %

These charges were again raised in August 1920, except in the case of corn, wheat and fruit.

Further increases are expected, as the present rates do not even approximately cover working expenses.

Financial Situation.

The financial situation is very bad, and receipts cover scarcely one half of the working expenses. This is in consequence of the railways which have been destroyed, and of the lack and high cost of labour and material.

The premature introduction of the eight-hour day in an agricultural country such as ours has resulted not only in an excessive rise in prices but also in an absurd situation. On lines which have not been repaired sufficiently to enable traffic to be restored, and on local lines on which only two trains run in 24 hours, three eight-hour shifts of employees and mechanics have to be employed in order to run only these two trains. This is a striking example, which needs no comment.

II. Administration of the Zagreb Railway.

State of the Railway.—The railways included under this administration during and before the war, until November 1918, were partly under the Hungarian and partly under the Austrian administration.

This administration included the railways in Croatia, Slovenia and Dalmatia. The length of lines amounted to 2,500 kilometres.

Main Lines.

The *Drnje-Bakar* line is a main line, and is available for the same amount of traffic as before the war. Trains may be run on this line at a speed of from 70 to 80 km. an hour. The line is in the same condition as before the war.

Sisak-Vinkovci line, over which the Simplon express passes, was built as a second-class line. It has not yet been brought to its pre-war state, but it has been improved since the revolution to the extent of 50 %. On this line trains run at a speed of 70 km.

The traffic capacity of the local lines has decreased owing to rotted sleepers, but they have been improved since the war to the extent of 25 %. 30 to 40 % of these second-class lines are in perfect condition, and the maximum speed is 40 km. They are in good condition from the technical point of view, but their iron-work requires painting, as this has not been done either before or during the war.

The railways in Slovenia are more or less in the same state as before the war. Indeed, their importance has grown, and some of their stations had to be enlarged during the war.

Most of the Dalmatian railways are under Italian administration; we can express no opinion with regard to them.

Works Urgently Required.—Rotted sleepers renewed, and the track ballasted with gravel to fill up the cavities.

Reconstruction Works Required.—Wooden bridges to be replaced by bridges of iron and reinforced concrete (Osijek, Kapela, Batrina line). Gravel to be replaced by broken stone ballast (Sisak-Brod line). Points of obsolete type to be replaced by points of modern type (Sisak-Vinkovci line).

Improvements.—The second-class line Sisak-Vinkovici to be made into a first-class line by replacing rails of 33.25 and 24.5 kg. by rails of 42.8 kg. On the local line Dugoselo-Novska rails of 23.6 kg. to be replaced by rails of 34.5 kg.

Construction of New Lines.—The lines Jospic-Knin and Krupa-Bibac are in course of construction. The following lines have been proposed, but their construction has been postponed :—

1) Bibac-Zrmanja ;
2) Murska Sobota-Ljutomer-Ormoz ;
3) St. Janz-Sevnice ;
4) Dugoselo-Rugvice ;
5) Rogatac-Krapina ;
6) Varazdin-Koprivnica.

Fuel.—The following data show the consumption of fuel and also the price per ton :

Consumption of fuel in . . .	1913	1918	1920
	Tons	Tons	Tons
	351,250	475,750	494,700

1913.—In this year the Zagreb Administration mostly used English coal and other coal of high calorific power.

1914.—In this year, English and Czech coal was used, also coal from Trifail, and about 40 % native lignite or Trifail coal for expresses and mail trains, amounting in all to 168,000 ; also 120,000 tons of Peschout coal, the rest lignite.

PRODUCTION AND CONSUMPTION OF COAL, CHARCOAL AND COKE, 1913.

Gross Production.	Coal.		Charcoal.		Coke.	
	Per Month.	Per Year.	Per Month.	Per Year.	Per Month.	Per Year.
Serbia	24,724	296,640	3,400	40,800	—	—
Bosnia	70,095	841,140	—	—	—	—
Croatia	16,825	201,911	—	—	—	—
Slovenia	128,436	1,541,240	—	—	—	—
Dalmatia	6,830	81,961	—	—	—	—
Total	246,906	2,962,372	3,400	40,800	—	—
Consumption at the mines	17,284	207,408	240	2,880	—	—
Gross production.	229,622	2,755,404	3,160	37,920	—	—
Imported from the Peschout basin.	—	—	28,925	347,100	—	—
From the Hungarian basin.	—	—	1,511	18,132	—	—
— —	12,020	144,240	—	—	—	—
— —	—	—	3,678	44,136	—	—
From Roumania.	—	—	8,528	102,336	—	—
— —	—	—	1,500	18,000	—	—
— Istria	—	—	5,535	66,420	—	—
— Czecho - Slovakia	—	—	13,833	165,996	1,738	15,656
— Kladno (Cz.-Slov.)	—	—	3,535	42,420	—	5,200 —
— Brux (Id.)	5,000	60,000	—	—	—	—
— Upper Silesia	—	—	13,406	160,872	1,525	18,300
— Westphalia	—	—	4,706	56,472	—	—
— England	—	—	7,526	90,312	1,916	23,000
— America	—	—	—	—	—	—
Total	17,020	204,240	92,683	1,112,196	5,179	62,148
Extraction, importation	246,642	2,959,764	95,843	1,152,150	5,179	62,148
Exportation	19,000	228,000	—	—	—	—
Remainder for consumption	227,642	2,731,704	95,843	1,150,116	5,179	62,148

Coefficient of satisfaction .....

Total coefficient of satisfaction .....

IN 1913 AND 1920 IN THE SERB-CROAT-SLOVENE KINGDOM.
1920.

Coal.		Charcoal.		Coke.		
Per Month.	Per Year.	Per Month.	Per Year.	Per Month.	Per Year.	
19,304	231,648	2,300	27,600	—	—	The price was 10 din. in 1913 and 120 din. in 1920.
65,806	789,672	—	—	—	—	
28,016	336,192	—	—	—	—	
99,632	1,195,584	—	—	—	—	
—	—	—	—	—	—	
212,758	2,553,096	2,300	27,600	—	—	
23,403	280,836	300	3,600	—	—	
189,355	2,272,260	2,000	24,000	—	—	
—	—	23,183	265,596	—	—	
—	—	—	—	—	—	
—	—	—	—	—	—	
—	—	—	—	—	—	
—	—	—	—	—	—	
—	—	—	—	—	—	
—	—	—	—	—	—	
—	—	400	4,800	300	3,600	
—	—	—	—	—	—	
—	—	—	—	—	—	
—	—	—	—	—	—	
—	—	—	—	—	—	
—	—	250	3,000	—	—	
—	—	—	—	250	3,000	
—	—	22,783	273,306	550	6,600	
189,355	2,272,260	24,783	297,396	550	6,600	
—	—	—	—	—	—	
189,355	2,272,260	24,783	297,396	550	6,600	

$$\frac{227,642}{189,355} = 63\% \qquad \frac{95,843}{24,783} = 25\% \qquad \frac{5,179}{550} = 10\%$$

2 tons charcoal = 1 ton.

$$\frac{113,821 + 95,843 + 6,882}{94,677 + 24,783 + 731} = \frac{216,552}{120,191} = 55\%$$

3 tons coke = 4 tons coal.

The number of locomotives in working order :	1913	1918	1920
a.) Expresses and mail trains	130	42	61
b.) Goods trains	193	146	215
c.) Various.....	42	30	32
Total.....	365	218	308

The total number of kilometres covered :

1913	1918	1920
12,758,084 km.	11,660,063 km.	10,464,033 km.

The number of locomotives required in the near future, and the deficit which must be covered either by the repair of damaged locomotives or by the purchase of new locomotives :—

The number of locomotives required	394
Deficit	86

Financial Situation.

The financial situation of this railway system is as follows :

a) *Pre-War Position.*—Before the war, all the railways which are now under the Zagreb Administration, formed part of the former Austro-Hungarian railway system. Their financial position cannot be considered except from the point of view of one entire railway system ; the financial position of the whole system must be taken as a whole in order to ascertain how much appertains to each individual line in proportion to its length.

It will be understood that on a calculation on this basis only an approximate table can be given.

b) *Situation immediately after the Armistice.*—As a result of the greatly reduced number of trains, and also of the completely disorganised administrative service, the receipts had become very small. For this reason working expenses have had to be covered partly by the State and partly by bank loans ; about 18 millions were lent by Zagreb and 15 millions by Ljubljana.

As the situation became more normal, receipts began to increase, but not in proportion to expenses.

Financial equilibrium has only been established up to a certain point as a result of a fresh increase in rates.

c) According to the provisional budget for the years 1919 to 1920 (up to May 31st, 1920), the total receipts amount to	272,023,769 crowns
Expenditure	236,669,322 »
Difference	35,354,447 crowns

Apart from the total expenses enumerated above, 150 million crowns were paid to the staff as supplementary wages to meet the increased cost of living.

This supplement for increased cost of living now amounts to 355 millions for the staff, and 220 millions for the workers.

III. Subovitza Administration.

The length of lines under this administration is about 2,000 km.

1) *Pre-War Condition of Railways.*—Before the war, the railway system under this administration belonged to Hungary and was in perfect condition from the point of view of communications ; the train service was regular and punctual.

During the war a new line was constructed between Scutari and Tchoka, utilizing the Scuta Bridge over the Tisza. This line, which is a temporary one of standard gauge, is 8 km. long ; nearly all the stations have been enlarged, and a station has been built at Novi-Sad.

2) *Condition of Railways during the War until the Armistice.*—During the war the condition of these railways considerably deteriorated. The rolling stock was sufficient, though not more than sufficient, to maintain the traffic.

3) *Present Condition of Railways.*—During the Armistice, as rolling stock and plant were both completely lacking, the up-keep of the railways became more and more difficult and their condition deteriorated even more. The chief causes of the difficulty of maintaining the railways were the lack of sleepers and ballast. It may further be pointed out that during the war the amount of work for purposes of maintainence and construction on the railways was negligible.

4) *Works Urgently Required.*—The following works are urgently required

for the up-keep of the railways; renewal of sleepers, substitution of special sleepers on bridges, re-ballasting and re-painting.

Traffic.

Number of trains running daily before the war	445
After the war in 1918	105
After the establishment of the administration in 1920 . . .	206

As a result of the lack of coal, communications were brought to a standstill in the Banat and Backa.

The amount of passenger and goods traffic is not known at present, as there are no statistics available.

From January 1st to June 30th, 1914, the consumption of coal on this system, the length of which is about 1,600 km., amounted to about 95,037 tons.

As the railway system under the Subolitza Administration is now about 2,000 km., it may be calculated that the consumption of coal would amount to 120,000 tons in six months or for a whole year 240,000 tons. The price of coal at that time was 12 crowns per ton.

In November and December 1918, immediately after the Armistice, about 16,174 tons of coal were consumed on the railways under this administration.

The amount of Peschout coal now required by the present traffic is 135,000 tons per annum, and when the traffic is increased, 180,000 will be required.

IV. Sarajevo Administration.

This administration includes the railways in Bosnia-Herzegovina.

1) *The Rail System and the condition of the Lines before the War.*—The attached table gives the length of the lines constructed or in operation in Bosnia-Herzegovina.

According to this table, the number of kilometres in operation is as follows :—

a) State railways	935,443 km.
b) Railways administered :	
1) Local electric railways at Sarajevo	5,648 »
2) Mine railways Podlugovi-Vares	24,388 »
3) Railways of Southern Dalmatia.	58,544 »
Total.	1,024,023 km.

These lines were in perfect condition before the war.

2) *Events During the War and Condition of Railways before the Armistice.*—At the beginning of the war many iron bridges were blown up on the line Sarajevo-Uvac. These bridges were temporarily repaired in October 1915

in order to establish communications at once. They were afterwards permanently repaired so that at the end of the war they were in perfect condition.

Towards the end of the war, several bridges were blown up on the line Medjeda-Vardiste. Bridges were also blown up on other lines towards the end of the war.

After the Armistice, the railways of Southern Dalmatia, which are 58,544 km. long and which were provisionally controlled by the Sarajevo Administration, became the property of the State Railway Administration of Sarajevo.

These lines were in perfect condition. There service was absolutely regular, except in the case of the Visegrad-Vardiste line, to which we have referred above.

Work Carried Out since the Armistice up to the end of 1920; *Present condition of lines.*—Since the Armistice and up to the end of 1920, most of the bridges destroyed have been rebuilt. Lines have been repaired and a large number of rotten sleepers renewed. During this period the lines have been in perfect condition and a regular service has been carried out.

Permanent Reconstruction Work to be Carried Out.—In order that the line should be permanently rebuilt, all the bridges which have been abandoned must be repaired, temporary constructions replaced by permanent constructions and a large number of sleepers renewed.

Traffic.—Passenger traffic, soldiers only.

In order to obtain an idea of the extent of this traffic we have based our calculation as regards the years 1913, 1918 and 1919, that is to say, for the present time, on the annual reports for 1919-20 and the provisional reports up to the end of November 1920, that is, for six months from June to November 1920.

The report for 1918-1919 only includes eleven months, as the financial year was fixed from July 1918 to the end of May 1919. The financial year counts from June 1st, 1919, to May 31st, 1920. The tonnage may be calculated in the same way, since, for statistical reasons, calculations should not be made by separate months.

Traffic Returns.

	1913	1918-19	1919-20	From June 1st to end of November 1920
Number of passengers	3,360,508	2,667,062	2,896,335	1,648,838
Tonnage	1,751,362	668,069	1,006,812	518,107
Fuel.				
Coal and wood, tonnage	236,082	259,021	234,961	134,902
Price per ton, crowns	7.6	33.5	112.1	311.7

The whole of the coal consumed comes from the mines in Bosnia, Herzegovina, Krek, Zenica, Zgosca, Breza and lately, from Mostar.

Wood fuel, used for lighting purposes, has also been included in these figures, but as compared with coal, the quantity used was too small to be taken into consideration.

Financial Situation (in crowns).

	1913	1918-1919	1919-20	From June 1st to end of November 1920
Receipts	20,480,699	53,527,648	134,063,516	129,976,460
Expenditure..	15,307,495	61,308,686	155,504,975	157,368,284
Balance	5,173,204			
Deficit		7,781,038	21,441,489	27,391,824

The increase in receipts for 1919-20 is due to the increase in charges and also from the increased tonnage as compared with the year 1918-19 ; moreover, the average distance covered, in the case of goods traffic, is greater than during the preceding years.

Expenses have increased owing to the rise in the price of material, particularly of fuel, and owing to increase in the wages of the staff.

II

NAVIGABLE RIVERS AND CANALS.

The Serb-Croat-Slovene Kingdom possesses a large number of navigable rivers and canals. The length of these is as follows:—

No.	Basin of the Black Sea rivers	Length of rivers		
		a Navig. length at present	*b* Navig. length projected	Total *a* + *b*
1	*Danube* Average length of the channel excluding branches	522	—	522
2	*Save* From its confluence with the Danube to the mouth of the Kupa	600	—	—
	Save From the mouth of the Kupa to the frontier of Styria	—	135	735
3	*Kupa* From its confluence with the Save to Pokupsko	60	—	—
	Kupa From Pokupsko to Karlovac	—	75	135
4	*Bossut* Tributary of the Save	40	—	40
5	*Spacva* Tributary of the Bossut	21	—	21
6	*Studva* Tributary of the Bossut	18	—	18
7	*Drave* From its confluence with the Danube to the frontier near Barc	160	—	—
	Drave From the frontier at Drne	—	69	229
8	*Tisza* From its mouth as far as Segedin	170	—	170
9	*Tamis* From its confluence with the Danube to Pancevo	3	—	3
10	*Morava* From its confluence with the Danube to Stalac	3	214	217
	Total	1,597	494	2,091

1. The length of the right bank of the Danube from Baia to the mouth of the Timoc amounts to 637 kilometres ; the length of the left bank from Baia to Bazias is 408 km. ; the length of the navigable portion is therefore 522 km.

2. The Kupa is only navigable for barges of the usual Danube type from its confluence with the Save as far as the station of South Sisak (4 km.). Small vessels only can reach Pokupsko.

3. The Drave is always navigable for barges of the normal type as far as Belisce (50 km.) ; it is navigable as far as the frontier and Barc (151 km.) for the same vessels when the water level is sufficiently high.

4. The basin of the Adriatic Sea only contains one river, the Neretva, navigable for some 25 km.; from its mouth.

No.	Canals.	No. of locks	Length in kms.
1.	King Peter Canal from Bedzan (*) to Turski Becej.	6	123
2.	Crown Prince Alexander Canal from Mali Stapar to Novi Sad	4	70
3.	Canal de Bega, from its confluence with the Tisza to the Roumanian frontier.	4	88
	Total.	14	281

The Navigability of Rivers.

Throughout the course of the Danube within the kingdom there is always a sufficient depth for the passage of boats and barges fully loaded. The minimum depth recorded on October 2, 1915, at a shallow near the mouth of the Tisza, was 26 m.

The only portion of the Danube where lateral canals have been constructed to allow of the navigation by vessels of 2 m. draught, is that known as the Iron Gates, which lies in the above-mentioned section between

(*) The canal is fed by a special canal which begins at Baia (Sugovica) and runs as far as Bezdan.

O-Moldova and Turn-Severin. The chief of these canals is near the village of Sip. Unfortunately, when the work was completed, fresh obstacles were found in the sections which had not been improved between the canals ; these reduced the available depth to 60 cm., when the water falls as low as the zero mark of the hydrometric scale at Orsova.

The next most important river after the Danube is the Save. Navigation on this river is often suspended during August and September, as soon as the level of the water falls below the graduation + 1.00 of the hydrometric scale at Mitrovica, because in these circumstances shallows appear, as at Misar near Sabac, which cannot be passed even by shallow-draught tugs (11-12 dm.).

The conditions on the Drave are identical, and navigation on that river is more frequently interrupted. That is also the case on the Tisza, but in this case navigation is most frequently interrupted by ice.

As regards canals, the navigable depths of the King Peter Canal and the Crown Prince Alexander Canal (which unite at Mali Stapar) vary between 1.55 m. and 1.70 m. (in November 1920 it was as low as 1 m. 30) ; the width at the bottom is 17 m. The locks are of different sizes, the largest having a length of 70 m., the smallest 42 m. and 60 m.

The greatest width is 13.97 m., the smallest 8.42 m. The navigable depth of the canal of Bega is 1.50 m. to 2 m., the width at the bottom is 12 m. ; the locks are from 60 to 73 m. in length and 10 m. in width.

Experience has shown that the most suitable type of barge, owing to the changes in the height of the water and the strength of the current, is the 650-tons type (65 wagons). The barges are loaded up to 100 % of their capacity (except for reasons of a commercial nature), throughout the course of the Danube within the frontiers of the S. C. S. State. The load is, however, usually reduced to 60 % (about 400 tons) when passing over rapids, or when the current is strong, and to 30 % (200 tons) in periods of low water.

As regards the duration of navigation, it is usually interrupted by ice during the winter, i.e., from mid-September till the middle or end of February (60 to 75 days) on the Danube and the Tisza. In practice the boatmen reckon on 250 days' navigation. Winter and ice do not as a rule hamper navigation on the Save and the Drave ; ice is found on the Save on an average one winter in fifteen ; but low water may interrupt navigation from mid-July until the middle or end of September (75 days). In practice, they reckon on 250 days of navigation per year on the two last-named rivers ; the duration is the same for the Danube and the Tisza, but the periods are different.

Winter ports for sheltering vessels against ice are situated as follows :

On the Danube :

1. Sougovica, near Baia, for 50 vessels.
2. Baracka, near Bezdan, for 120 vessels.
3. Novi Sad, for 100 vessels.
4. Pancevo, for 90 vessels.

On the Save:

5. Bezinaja, near Zemum, for 170 vessels.
6. Ada Tsiganlija, near Belgrade, for 210 vessels.

The latter figure is considerably increased by the construction of new ice-breakers.

On the Drave:

7. Osjek, for 60 vessels.

Making a total of 705 vessels.

The entire fleet of river craft of the S. C. S. State can take shelter in these ports, but the number could be still further increased by making use of the winter port of Kovin, which is not yet in good order.

Technical Works to be carried out on the S. C. S. River System.

A.—*Works for Upkeep.*

1. *Permanent Works.*—During the last year various works have been carried out for the protection of the banks; the chief are those near Gombos (below the confluence with the Drave); 10,000 cubic metres of stone—involving an expenditure of 350,000 din—were employed. In addition to the excessive cost of all works of this sort under present conditions, the expenditure has been increased by the necessity of carrying out not only the ordinary maintenance work of these structures, but also their repars, with a view to restoring them to the condition in which they were (in 1914) at the beginning of the war.

2. *Dredging.*—The same remark holds good with regard to dredging. The amount of soil dredged annually in the Danube, the Save and the Tisza may be reckoned at from 1,200,000 to 1,500,000 cubic metres, about 100,000 cubic metres of which come from the winter ports, but this is an average estimate, which should be increased three-fold or four-fold in the case of the winter ports for the next year or two.

3. *Removal of Tree Trunks.*—This work is of the highest importance on the Danube and its tributaries. As an instance, the Save is obstructed by tree trunks below its confluence with the Drina and the Bosna; on the Drave, trunks are found at 80 places. Between Stalac and the mouth of the Morava as many as 2,000 tree trunks have been found, forming a complete block to navigation.

4. *Buoying of Channels.*— A scheme for buoying, to permit night navigation on the Danube, the Save, the Tisza and the Drave is now being carried out. The complete scheme for the Danube provides for 101 fixed signals and 154 floating buoys, the greater part of which are lighted. Efforts are being made to obtain a better system of lighting on the section Zemun-Belgrade, in which 8 floating buoys have already been placed.

B.—*New Works.*

1. *Regularisation of Rivers.*—The regularisation of the Middle Danube was undertaken by the Hungarian Government only. The most insecure places are at present at the mouth of the Tisza, near Vaiska, and in the neighbourhood of Veliko Ostrovo (below its confluence with the Morava). The approximate cost per kilometre would be two million dinars. The schemes previously drawn up are now obsolete ; steps are being taken to prepare fresh ones.

The regularisation of the Save is of the highest importance. Steps are already being taken to form a waterway from Belgrade to Zagreb ; the minimum depths on this route are variable. For the present it is only possible to fix a depth of two metres below the zero of the hydrometric scale as the minimum depth of the Save between Belgrade and Bosanski Brod.

In view of the heavy traffic which already exists over this section (700,000 tons in 1920), it should be possible, by moderate charges, to cover the necessary expenditure for the execution of these works.

A very interesting undertaking is the reopening of the Morava for navigation ; this should prove possible on the section from the mouth of the Stalac (217 km.) with fairly simple and limited means ; this work is already in hand.

2. *Construction of Dykes against Floods.*—Hundreds of kilometres of dykes have still to be made in order to complete the canalisation of the Save, and about 400 km. to protect the valley of the Great Morava. A wide stretch of marshy ground borders the Danube opposite Belgrade, and it is very difficult to calculate, even approximately, what capital would be required to execute the most urgent works.

The importance of these works is sufficiently illustrated by the fact that more than 40 companies have been formed for the purpose of protecting this land against inundation, and the area of land already protected by dykes is one million hectares.

3. *New Canals Projected.*—The new canals projected are three in number :

(a) The Voukovar-Samac Canal, with a length of 56.5 km., and two locks at the ends ; the expenditure necessary was estimated before the war at from 24 to 28 million crowns.

This canal would reduce the distance between the Danube above Voukovar and the Upper Save by 420 km.

(b) The Danube-Adriatic Canal. The projected course of this canal is as follows ; the Save as far as Sisak ; the Kupa, as far as Carlovac ; the canalised Kupa as far as Velika-Kapela, thence by a navigable tunnel, 24 km. in length, to the the Adriatic. The expenses, according to the draft scheme, will amount to 400 million dinars.

(c) The Morava-Vardar Canal. This canal, 640 km., in length, will be formed partly by the lateral Marava Canal and partly by the canalised Vardar. As the height of the ground at the summit level reach is 460 metres, the canal requires a great number of locks.

The estimate of expenditure has not yet been completed.

The Condition of the River Ports before the War.

The ports situated in the territory of the S. C. S. Kingdom fall into two classes as regards equipment :

(1) The ports situated in the Kingdom of Serbia. Although their equipment was somewhat primitive, transhipment and unloading were carried out without much difficulty, owing to the favourable situation of the ports their approaches.

(2) The ports situated in the territory of the old Austro-Hungarian Monarchy. These ports were kept in better condition than those in Serbia. They were equipped with sheds, wharves, stores, railways, etc. The Save and the Danube were only frontier rivers for Serbia. The competition of Austria prevented Serbia from developing its communications to any great extent, and it was natural that she should give less attention and devote fewer funds to the development of her ports.

The war, which was ruthlessly conducted by the enemy, had a disastrous effect on the ports in general, and particularly on those situated in the zone of military operations, Belgrade, Mitrovitza, Chabatz, Doubravitza, Palanka, Smederevo, and Prahovo.

Condition of the Ports after the Armistice.

When the armistice came, the condition of the ports was as follows:

Port of Belgrade.—All the buildings on the river bank used as depôts offices, quarters for the waterways staff, etc., were demolished by th, enemy's bombs or were burnt. A number of vessels and pontoons were sunk in the port itself. The railway bridge over the Save was demolished four times, and four of its sections were sunk in the river. In a word, the port was entirely destroyed, as also the neighbouring part of the town and the factories and shops which supply the needs of the port. In addition, the enemy destroyed, or removed, a great quantity of material which was essential for the wharves and port. All this devastation inevitably hindered navigation, repairs to vessels and the general work of the port.

All the things which had been sunk, such as bridges, piles, wharves, boats, etc., obstructed the course of the river, the right bank of which suffered, and is suffering, heavy damage.

Doubravitza.—A considerable number of vessels was sunk in this port near the bank. These vessels obstruct navigation and access to the wharves, besides causing the sand to silt up in the river-bed the whole length of the port.

Smederevo.—This port suffered most during the retreat of the enemy who destroyed the railways and the sheds in the port.

Palanka.—This port did not suffer from the military operations, but as the war prevented carrying out drainage works, it is difficult for vessels to come alongside, owing to the sand and earth which have accumulated; this reduces traffic, and considerably increases freight rates.

Prahovo.—During their retreat the enemy destroyed all the buildings used for this port and all those situated along the quays.

Movi-Sad.—This port was also damaged by the enemy, who in their withdrawal sank several vessels and destroyed the railways of the port.

Chabatz.—During the war this port suffered greatly from bombs; the town was entirely destroyed and all the harbour buildings were completely demolished.

Mitrovitza, on the Save.—Many vessels were sunk in this port also, and much Construction work, including the railway, was demolished.

Prospects of Full Operation.

After the enemy's retreat, and when the Armistice had been concluded, steps were taken to carry out all possible repairs in order to restore communications. These repairs consisted, as a rule, in the reconstruction of buildings and railways which had been demolished. Similarly, the river bed in the ports was cleared of various artificial obstacles. Several vessels and barges which had been sunk were refloated. After this preliminary work the ports were reopened for traffic.

Condition of the Waterways and Ports.

The restoration and improvement of the navigable waterways will involve large expenditure and much work. According to the scheme, the work may be divided into two categories: work rendered necessary by the war, and work in connection with that necessitated by the war.

The work rendered necessary by the war is to remove from the river-bed or blow up vessels which were sunk, also bridges and piles which were demolished; to repair quays damaged either by bombardment or by deviation in the course of the river; to reconstructing the buildings used in connection with the port and destroyed by the enemy, sheds, offices, quarters

for staff, etc. ; to repair the communications in the area of the port (roads and railways) ; and in general, to build everything required for the use of the ports.

The work required in connection with those mentioned above would be as follows : dredging the sand-banks which have accumulated where vessels were sunk ; canalisation of the river by means of dykes (in places where the river has been deflected from its course by sunken vessels, etc.).

All this work is urgently and immediately required, but as the programme is so extensive, progress will be governed by the financial resources available.

In addition, we must build vertical walls, wharves, ports themselves, cranes and all the machinery necessary for loading, unloading and transhipping goods, as well as elevators for wheat.

The whole programme must be carried out if we are to have ports capable of meeting the requirements of home and foreign trade.

Construction of New Routes.

Large docks should be built in each port so that each class of goods would have its special wharf, on which would be situated the special machinery required for loading, unloading and transhipping these goods, and also the sheds to shelter them.

In this connection the first ports to be considered are : Bosanski Brod, Belgrade and Prahovo.

Bosanski Brod is the centre for the export of coal by the River Save, which is the chief artery of the S. C. S. territory.

Belgrade, owing to its geographical situation, is the commercial centre of the S. C. S. State, but it has not yet got a modern port capable of meeting all its needs. There as a scheme for developing the port of Belgrade by excavating basins in which it would be possible to load, tranship and unload goods at all water-levels and throughout the year.

Prahovo. This port should be constructed in such a way as to serve for the transhipment of goods from river-craft to seagoing vessels and vice-versa. This port is on the Danube, on the eastern frontier of the kingdom, opposite Roumania, and is destined to have a prosperous future. Though primitive and ill-equipped, it rendered great service to the Allied cause during the war, constituting, as it did, a connecting link between Serbia, Roumania, Russia and the west, while both the Bosphorus and the Baltic were closed to the Allies.

Condition of the Fleet before the War.

Before the war, almost the entire mercantile fleet on the whole of the Danube and its navigable tributaries was under the control of Austria-

Hungary. The mercantile fleet on the whole of the Danube (and its navigable tributaries) had a horse-power of about 130,000 and a tonnage of 1,200,000. Austria possessed 52.50 % h.p. and 50 % of the tonnage. Hungary possessed 30.50 % and 26 % respectively. The other riparian States had thus only 17 % of the horse-power and 24 % of the tonnage, and of this amount Serbia only possessed 3.75 % of the horse-power and 3.50 % of the tonnage.

This percentage represented the whole national mercantile fleet of the Kingdom of Serbia ; it consisted of 16 vessels, of which 6 were for passenger traffic, with 4,860 h.p., and 106 barges (58 of iron and 48 of wood) of 43,220 tons ; these vessels belong to private companies.

The mercantile fleets of Croatia, Bosnia and Voivodina were so insignificant that they are not worth taking into account. All the river communications of these countries, which to-day form part of the Serb-Croat-Slovene Kingdom, were at that time monopolised by Austria-Hungary.

In the two preceding cases no mention has been made of small coasting trade.

In order to meet competition, our fleet was maintained in the best possible condition.

Condition of the Mercantile Fleet on the Navigable Rivers of the Country.

The present size of the mercantile fleet on the navigable rivers of the Kingdom is 33 % in respect of horse-power and tonnage of the total fleet which existed on the Danube before the war ; this includes the vessels captured by our army, and those handed over under the armistice agreement.

This quantity is, nevertheless, not in proportion to the capacity of our navigable rivers, seeing that one-half of the whole extent of the navigable river system of the Danube lies within our country and that, in consequence, we ought to possess one-half of the Danube river craft instead of one-third, as stated above.

The private property of our nationals consists of 24 merchant craft with 4,890 h.p., and 160 tugs of 24,698 tons total.

All the Serbian passenger craft were destroyed during the war. We are leaving out of consideration a certain number of skiffs and boats of less than 20 tons which are propelled by oars and are responsible for all local transport and communication services.

The condition of the fleet, when taken over by the Serbian Army after the armistice, was deplorable. All the vessels had been looted and scattered, and had been abandoned by their crews. The material was broken, damaged or destroyed, and on several vessels the engines had become unserviceable, either as a result of negligence or of sabotage.

All repairs were carried out in the same district by two small workshops, of which one was captured from the enemy and the other improvised. The fleet which the enemy had used during four and a-half years was found to have suffered greatly from wear.

A large workshop is under construction ; work was commenced on it in the spring of 1921.

Passenger and Goods Traffic.

A.—*Before the War.*

River navigation, as regards which a distinction must be drawn between passenger and goods traffic, was carried on within the Serb-Croat-Slovene Kingdom by navigation companies of all kinds. As has been already mentioned, nearly all communications had been monopolised by Austro-Hungarian companies. Within the territory in question, which now forms part of our kingdom, our navigation was stifled by foreign competition, and for this reason is hardly worth consideration.

As a result of immense sacrifices and super-human efforts, the Kingdom of Serbia was able, unaided, to make headway against foreign competition, and it has succeeded, at any rate, in establishing a position in the small coasting trade. The goods exported and imported by the national fleet of the Serbian Kingdom were insignificant in comparison with total exports and imports, because the national companies could not compete with foreign navigation companies of old standing and perfect organisation. For these reasons, navigation was not developed in the Kingdom of Serbia because it was limited to home trading, and because there was only one shore at our disposal. The routes followed were the Danube from Belgrade to the Timok mouth (328 km.), and the Save from its mouth as far as the Drina (177 km.)—a total of 505 km.

The passenger service was maintained by special vessels. All the navigable rivers, except the upper reaches of the Save and the Drave, were divided by agreement between the chief Austrian navigation Company, the D. D. S. G., and the Hungarian company, M. F. T. R. with a view to preventing competition between two firms over the same route. Passenger services on the Danube between Vienna and Galatz were carried on by the two companies in the ratio of 2 to 5 ; the route from Galatz to Subina, and also that from Vienna to Passava, was served by the D. D. S. G. ; while the Tisza and the Lower Save were left to the Hungarians. The Kingdom of Serbia only got the benefit of the passenger service on the Danube and the Lower Save, while the passenger service in the interior of Serbia was entirely national, and was maintained by the vessels of the Serbian Navigation Company (Srpsko Brodarsko Drustvo). The local service from Zemun to Belgrade was shared in equal proportions between the S. B. D. and the D. D. S. G.

The goods traffic was also divided between Austria and Hungary. This traffic was highly developed and was carried on regularly over the whole navigable length of the Danube Basin. National companies, which were unable to meet competition, took only an insignificant part in Serbian export and import trade.

We have no statistics for passenger traffic before the war in the Kingdom of Serbia, as all the documents relating thereto were destroyed during

enemy occupation. It is enough to say that of the 16 vessels which made up our national fleet, 6 were for passengers and were always full, owing to the simple reason that along the whole bank of the Danube from Belgrade to the Timok mouth there is no railway running in this direction, and communications with this part of the Kingdom were only carried on by river craft. A similar state of things prevailed on the Save between Belgrade and the mouth of the Drina.

No statistics for river passenger traffic in the new territories of the Serb-Croat-Slovene Kingdom are available, as the whole of the passenger traffic on the navigable waterways was in the hands of the Austrians and Hungarians.

As regards the Kingdom of Serbia, we have partial statistics for the tonnage of goods from the period 1918 to 1912:

Imports	215,552 tons
Exports	409,446 tons
Transit	93,378 tons
	718,376 tons

The total tonnage of goods transported by boat or railway is comprised in these figures. Sixty-two per cent. applies to waterways, and thirty-eight per cent. to railways, which means that 445,393 tons were carried by water. We have no statistics for the transport of goods on waterways in the new territories of the Serb-Croat-Slovene Kingdom. The amount of goods carried by national enterprises was too insignificant to be worth mentioning.

B.—*The Period immediately following the Armistice.*

Until July 1, 1919, the whole navigation service was controlled by the military authorities, and was of a purely military character, both as regards the goods carried and the handling of them. Passenger and goods traffic was carried on in so far as military requirements permitted. After July 1st, 1919, the Ministry of Communications took all the services under its control, making allowance for commercial requirements, but navigation still maintained its military character to a certain degree, especially as regards the passengers and goods carried. The goods traffic gradually resumed its normal character, whilst the passenger services were made more frequent and more comfortable.

Fairly exact statistics can be supplied for passengers and tonnage carried up to October 10, 1919, although records were only carefully compiled from March 1, before which date no books had been kept, the services being of a purely military character. The results are as follows:

1,965,383 tons of goods were transported, two-thirds of which were military material.

C.—*Present Day.*

The present period may be considered as starting from the formation of the Serb-Croat-Slovene Syndicate, i. e., October 11, 1919. This syndicate was established on a purely commercial basis and was of a temporary nature, intended to control navigation until the final settlement of the question of the fleet which is almost entirely the property of the State.

At present there is a daily improvement and development in communications. Passenger traffic is almost exclusively controlled by the Syndicate, but other navigation companies besides the Syndicate participate in the goods traffic, together with private owners of boats. Passenger traffic is carried on on eleven routes in the Kingdom, on the Danube as far as its extreme limits, that is to say, between Vaia and Radouyevatz, and also upon the Tisza as far as Segedin. We have not a sufficient number of boats to carry on a service beyond the national frontiers.

Transport services are carried on on all the navigable rivers, canals and tributaries, not only within the frontiers, but also as far as Regenzburg and Galatz.

These two services are very frequent and are increasing from day to day ; almost the whole of the export and import trade and part of the transit trade is in our hands.

Statistical data, which will follow later, will show the development of navigation services.

Although our State, like the other European States and those outside Europe, has not yet been able to return to pre-war conditions, we are sure that our transport service will shortly reach the figure of $2^3/_4$ million tons—a figure which we rely upon attaining.

In this case, of course, the fleet will be improved, increased or transformed up to the most modern standards. To realise the activity of the service which will be the result, it is sufficient to compare the following statistics with the figures stated above as the tonnage to be carried by our future navigation service. These statistics are :

From October 11 to December 31, 1919, 220,739 tons of goods and 465,647 passengers were carried.

From January 1 to October 30, 1920, 1,039,271 tons of goods and about 2,250,000 passengers.

Complete statistics for the year 1920 have not yet been collected.

Financial Situation of Navigation.

Before the war, there existed in Serbia only the privileged Serbian Navigation Company, founded in 1893 with a share capital of 1,000,000 dinars, which has been raised as required to 3,000,000.

In Serbia, which at that time was small, this company satisfied all Communication requirements and produced for its shareholders a dividend of 6 %. It was under obligation to the State only in so far as the latter had guaranteed its share-holders a dividend of 6 % on the capital. This subsidy

was required not only to guarantee the revenues of the Serbian Navigation Company, but also to support national communications against the Austrian Navigation Monopoly, to safeguard commercial and industrial interests, and above all to assure the export of agrarian products which are so abundant in Serbia.

For this reason, the State had to contribute a sum almost every year in order to make up the dividend of 6 %. In 1909 and 1912 only, it was not called upon for this contribution. After the declaration of war this company sustained enormous losses. Most of its vessels were sunk and the rest confiscated ; the company had to close down its offices.

The Serbian Navigation Company, in its balance-sheet for 1919, stated its expenditure on amortisation, salaries, dividends, and sums paid out to various funds, for the financial years 1914 to 1918, and 1919 up to September 30th. According to this balance-sheet, this expenditure amounted to 6,869,270.20 dinars.

At the beginning of October 1919, the S. C. S. Navigation Syndicate was founded, to which the State contributed the prizes captured during the war. The Serbian Navigation Company and 23 banking institutes took part in this enterprise, the total capital being 2,300,000 cash, with the obligation to increase if necessary. In 1919, the balance-sheet of this syndicate (from October 10th to December 31st. showed a net revenue of 1,005,725.68 dinars and 2,669,048.04 dinars were set aside from the total revenue for the upkeep of the company's fleet. The chief revenues of the Navigation Syndicate were as follows :

Charges arising from conveyance of goods and passengers from towage, measurement, loss of time, factories, etc. : 9,801,703.87.

Expenses—Coal : 2,166,362.59 ; Salaries : 1,948,577.82 ; Repairs to vessels : 436,221.04 ; Repairs to barges and pontoons : 80,005.27 ; Amortisation payments to State : 1,979,839.80 ; to the Serbian Navigation Company : 689,208.24 etc. Total : 8,795,978.19 dinars. It will be seen from this that the balance for 1919 may be considered satisfactory.

The balance-sheet of the Navigation Syndicate for 1920 has not been finally drawn up. For this reason, the revenue for this year cannot be definitely stated.

Considering that a great part of the fleet was under repair in 1920, that traffic has very much increased, and that our river navigation is daily increasing, we shall not be wrong in presuming that the year 1920 will produce an even greater net revenue.

Consumption of Fuel.—Many years' experience has shown that a vessel works upon an average, 250 days in the year, wintering and the time required for repairs and boiler cleaning included, and also that it works an average of 11 hours per day.

The consumption of fuel varies according to its calorific value. In view of the fact that our State is making efforts to achieve independence in this direction also, by using native coal only, we will take as basis the calorific value of the Boljevatz coal which is approximately equal to that

of Peschut; we shall denote this with the coefficient 1.00. The other kinds of native coal are of lower calorific power. We shall therefore only take into consideration those which can be used for navigation, namely:

Bosnian coal (dark), with the coefficient	0.75
Kostolatz and Slovenian coal, do.	0.50

The pre-war prices of coal and lubricants were:

Peschut coal	crs.	18.—	per ton
Bosnian coal	crs.	11.20	per ton
Kostolatz coal	din.	10.—	per ton
Machine oil	crs.	0.90	per kg.
Ragozine	crs.	3.—	per kg.
Tallow	crs.	0.80	per kg.

The present prices of these materials are as follows:

Boljevatz coal	din.	304.60	per ton
Peschut coal	»	297.50	per ton
Slovenian coal	»	83.10	per ton
Bosnian coal	»	224.70	per ton
Machine oil	»	12.00	per kg.
Ragozine	»	14.00	per kg.
Tallow	»	15.—	per kg.

A ship consumes per hour (taking an arithmetic average), 8 quintals of Peschut coal or 10 quintals of Kostolatz or Slovenian coal, and it would consume approximately the following quantity of lubricant per hour:

Machine oil	1½ kg.
Ragozine	½ kg.
Tallow	¼ kg.

The total expenditure on fuel and lubricants before the European war, according to these figures, was:

16 vessels multiplied by 250 days and 11 hours = 44,000 "water" hours.

It follows that the expenditure on Peschut coal was 44,000 × 8 = 352,000 quintals or 35,200 tons.

35,200 tons × cr. 18 = cr. 633,600.

44,000 × 10 (Bosnian) = 440,000 quintals or 44,000 tons.

44,000 tons × cr. 11.20 = cr. 492,800.

44,000 × 12 (Kostolatz or Slovenian coal) = 528,000 quintals or 52,800 tons. 52,800 tons × 10 = dinars 528,000.

Allowing for the fact that the dinar in 1914 was equal in value to the crown, coal cost 633,000
494,800
528,000
1,654,400 ÷ 3 = 551,467 din.

Expenditure on lubricants:

Machine oil	44,000 hours ×	1½ kg. =	66,000 ×	0.90 =	cr.	59,400
Ragozine	44,000 hours ×	½ kg. =	22,000 ×	3.— =	cr.	66,000
Tallow	44,000 hours ×	¼ kg. =	11,000 ×	0.80 =	cr.	8,800
				Crowns or dinars. .		134,200

Cost of coal	551,467
Lubricants	134,200
	685,667

Although prices and conditions to-day are very variable, it may be estimated that we should require 380,000 tons of coal, and 900 tons of lubricants per annum, if we possessed a fleet in proportion to the number of navigable kilometres on our rivers.

III.

MARITIME NAVIGATION.

It is impossible for the moment to furnish full details as to the organisation of maritime navigation in the Serb-Croat-Slovene Kingdom, as the Adriatic question has not yet been finally settled, and because only a part of the vessels which are to be restored to our nationals have been handed over.

By a decree of September 6th, 1919, a general department, maritime navigation was set up under the control of the Ministry of Communications and of the Maritime Government of Bakar, which controls all the ports in the Adriatic.

SPAIN.

I.

RAILWAYS.

State of the lines and general upkeep : Good.
Urgent repairs requiring to be effected : None of any importance.
Final reconstitution work to be effected : Nil.

Plant.

Improvement Work and Construction of New Lines.

The electrification of the line from the Pass of Pajares connecting the Asturias system with the interior will shortly be taken in hand.

At the same time, a new double-line track will be laid down between Palencia and Leon.

The double-track line between Irun and Madrid and a double-track line between Barcelona and Gerona are in course of construction. Work has been started on the double-track line between Valencia and Jatiba, and also on some similar lines of less importance.

The renewal of the track is being continued, the new rails having a weight of 42 to 45 kgs. per metre ; the bridges on the lines from Madrid to Seville and Toledo are being strengthened and renewed. This work is already finished, so far as concerns the lines running North and East from Madrid.

The international lines from Canfranc and Puigcerda are nearly completed. Plans have been approved for a line from Caminreal to Carinena, which will enable a direct Southern route to be established from Valencia to France via Canfranc ; and for a line from Zamora to Orense, to expedite communications between Madrid and Vigo.

The scheme for a direct line from Madrid to Valencia has been approved, while the lines Noguera-Pallaresa and Ferrrol-Gijon, which are to complete the narrow-guage light-railway system along the Cantabrian coast, are

under construction. The proposed international line crossing Spain from the Pyrenees to Algeciris via Madrid is under construction.

Marshalling stations are being built at several places which are suitable from the point of view of traffic.

Condition of the Rolling Stock.

Generally good, but there is a considerable number of locomotives, carriages, and trucks awaiting repair ; this state of affairs is due to difficulties arising from the war, particularly to the shortage of spare parts, and to the diminution in the output of labour caused by the introduction of the eight-hour day.

Train Service.

The passenger trains running from the frontier station of Irun are as follows :

In each direction : mixed trains, 1 ; mail trains, 1 ; express trains, 1 ; fast trains, 1 ; which, in comparison with pre-war conditions, shows a reduction of one train : the international " Sud-Express ".

Traffic on the frontier at Port-Bou is as follows :

In each direction : omnibus trains, 1 ; mixed trains, 1 ; mail trains, 1 ; express trains, 1 ; which, compared wich pre-war conditions, represents a reduction of two trains, namely :

Express train, 1 ; " Rapide de luxe ", 1.

At the Portuguese frontier the express train which used to run daily only runs at alternate days, and the international " Sud-Express " has been abolished.

With reference to interior communications, the following trains have had to be taken off for various reasons, due directly or indirectly to the war :

Express trains between : Madrid and Barcelona ; Madrid and Valencia ; Madrid and Seville ; Cordoba and Malaga ; Cordoba and Cadiz ; Cordoba and Grenada ; Cordoba and Algeciras.

Traffic.

The average number of passengers carried per year for the pre-war period was	50,350,000
In 1920 it was	84,300,000
Making an increase of	33,950,000
The corresponding figures for tonnage are :	
Average pre-war	29,090,223
In 1920	35,351,920
Making an increase of	6,261,697

Tariff Charges.

The increase in rates for passengers and goods was 15 %.

Fuel.

The total consumption of fuel (coal) classified by qualities, ordinary briquettes, and small, is 1,800,000 tons in round numbers. The supply varies with the different companies, and the stocks held are usually sufficient for a period of from 3 to 8 months.

During the war, nearly all the coal in use was Spanish. At present British and American coal is being increasingly used and is mixed with Spanish coal. The tendency to use imported coal is becoming more marked as more tonnage is available and freights are falling.

The average price of fuel for the large companies such as the " Norte " and " M. Z. A. ", possessing their own mines, which furnish 20 % of their consumption, is at present from 90 to 100 pesetas per ton.

For the smaller companies, who do not own mines, the cost is from 100-150 pesetas.

General Financial Condition of the Railways.

The financial condition of the different companies leaves much to be desired, owing to the enormous expenses which the war has forced them to incur.

Their receipts do not suffice to meet the cost of operation and the charges on their capital, so that they have been obliged to accept State aid in the form of loans in order to meet the increases in wages and the reduction in the working day, as well as for the purchase of locomotives, carriages and waggons.

II.

SEA AND RIVER NAVIGATION.

Condition of the Ports.

Their condition is good, except for some urgent repairs, details of which are given below.

In the majority of ports, improvements are constantly being carried out.

Congestion.

This arises occasionally owing to the inadequacy of land transport and premises.

Condition of the Waterways.

The Spanish waterways are not of great importance. Three rivers alone, the Guadiana, Mino and Ebro, in portions of their courses, and a few sections of the Castille and " Imperial Aragon " Canals, are navigable. These waterways are in good condition.

Urgent Repairs to be Effected.

In the ports of Barcelona, Séville, Vigo, Musol and La Luz (Canaries) important work is being carried out on a considerable scale to repair damage to docks. The damage in question does not, however, prevent the utilization of these harbours.

Works to be Carried Out for Complete Reconstruction.

Nil.

Construction of New Ports and Waterways, and Improvements in Those already Existing.

As regards new ports, only a few are under construction, and these are only of local importance.

The following works for improving existing ports are worthy of mention :

Work for the exploitation of a free port at Barcelona.
Works for enlarging the port of Valencia.
Works for enlarging the free depot (Dépôt franc) of the port of Cadiz.
Harbour works at Algeciras.
Work designed to improve the port of Seville by means of the " Corta de Tablada " ; rectification of the course of the river Guadalquivir.
Works at the ports of Ceuta and Melilla on the Coast of Africa.
Works are also projected with the object of making the Guadalquivir navigable from Seville to Cordoba.

Condition of the Mercantile Marine.

The Mercantile Fleet at present consists of :—

52,640 tons represented by 259 steamers of less than 500 tons burthen.
840,007 tons represented by 379 steamers of over 500 tons burthen.
60,639 tons divided among 516 sailing ships of under 500 tons.
53,906 tons divided among 38 sailing ships of over 500 tons.

This makes a total of 1,192 ships with a tonnage of 1,007,192 tons.

These figures are for 1920. They show an increase of 318 sailing vessels and 10 steamers over those for 1914. The increase in tonnage is of 81,575 tons for sailing vessels and 48,325 tons for steamers.

Shipping Companies.

Regular subsidised national lines :—

Trans-Atlantic Company.

Mail lines :—

Line to South America.
» » North America.
» » Central America.
» » the Antilles.
» » Fernando Po and the Philippines.

The above services are monthly, except for the Philippines, which is bi-monthly.

Trans-Mediterranean Company.

Mail Line :—

Line to Palma de Majorca, Minorca, Ibiza, the Canaries, Ports of Southern Spain and Spanish Possessions in North Africa.
Regular National Lines (not subsidised).
Line to North America.
Commercial lines to England.
» » Mediterranean ports, to North Africa, to Italy and to the ports of the Cantabrian Sea.

Pinillos Company.

Lines to Brezil-La Plata.
» the Antilles.
» the United States.

Domingo-Mumbru Company.
Regular commercial service to North America.
Bengolea Company .
Commercial lines, N. America - Mediterranean and Italian Ports.
Vasco-Andalusian Company.

Commercial lines, N. America - Southern French, Mediterranean and Cantabrian Ports.

Ramon A. Ramos Sons & Co.

Commercial lines, Mediterranean ports and N. America.

José Taya, Sons & Co.

Lines : The West Indies.
» U.S.A.
» England.
» Italy.

Enrique Freixas and Company.

Commercial line, Southern French ports.

José Gelabert and Company.

Commercial line, Southern French ports.

G. Marterell and Company.

Commercial line, Barcelona to Palamós and St. Felin de Guixols (small sailing and motor vessels).

Vve Llusá & R. Masià.

Line of high-tonnage sailing vessels, U.S.A. and the North Indies.

Passenger Traffic (1920)

Number of passengers leaving the country: 225,000.
Number of passengers entering the country: 215,000.

Goods Traffic (1920)

Ports, loaded	11,000,000 tons.
» unloaded	6,000,000 tons.
Rivers and canals	300,000 tons.

Increase of Passenger Rates.

Varies between 150 and 200 % for first class.
» » 50 to 100 % for third class.

Increase of Goods Rates.

In the case of most companies, from 100 to 250 %, according to the line and class of goods.

In the case of the Trans-Atlantic Company, which is subsidised, these increases have not exceeded 50 to 100 %.

Fuel.

Total consumption amounts to 1,500,000 tons of home and foreign mineral coal. The supplies are very variable.

The net cost is from 90 to 125 pesetas per ton.

General Financial Situation.

At the present moment the shipping industry is passing through a crisis. Many ships are laid up.

III.

MOTOR TRANSPORT.

As the system of auxiliary railways in Spain is very incomplete, there have always been numerous services worked by animal traction; these have gradually been transformed into motor services. No complete statistics exist for these services, as they are of comparatively recent origin, but they certainly include at least 500 regular passenger services. Owing to the railway crisis, several of these motor services are also undertaking the transport of goods by means of motor lorries.

IV.

DEVELOPMENT OF AIR NAVIGATION.

This service is under the control of the "Ministerio de Fomento" (Public Works, Agriculture, Industry and Commerce).

Services now in Operation: Toulouse, Barcelona, Alicante, Malaga, Tangier, Rabat, Casablanca; passenger and mails. Holder of concession: Maison Latecœur.

Bayonne to Bilbao; passengers. Holder of concession: Société Franco-Bilbao de Transports aéronautiques. (Franco-Bilbao Air Transport Co.)

Proposed Services: A general plan for air transport services to meet national requirements and provide communication with France, England, Africa and America.

Aerodromes in Operation: Alicante - Amposta - Barcelona - Bilbao Madrid - Malaga - San Sebastian - Victoria - Larache - Melilla - Seville.

SWEDEN.

I.

RAILWAYS.

During the war neither the railways nor the buildings belonging to them suffered any direct damage. The lines are in good condition and repairs have been executed in accordance with the requirements of normal upkeep and traffic.

In regard to the building of new lines, the following new State lines are under construction :

The inland line (Ostersund-Gallevare) ;
The cross-country line Forsmo-Hoting ;
The cross-country line Hallnas-Stensele ;
The junction line Sveg-Brunflo.

The last of these lines will be the artery for direct traffic from Western Sweden to the northern portions of the country ; the other lines will be merely local services.

In regard to the condition of rolling stock, upon which great demands were made during the heavy traffic of the war years, it is at present repaired and is in good condition. In particular, more than normally careful attention has been given to the selection of the locomotives for the State Railways, and the new types of locomotives with the new type of boiler have proved very economical as regards fuel consumption. All the rolling stock on the State Railways are now furnished with brakes of the Kunze-Knorr system.

Analysis of Traffic and Amount of Traffic in 1919.

	State Railways	Private Railways Gauge Standard	Private Railways Gauge Narrow
Average length of lines operated during the year . . . . . (km.)	5,500	5,995	3,392
Train Traffic :			
Train-kilometres . . . . . total	24,866	19,009	8,409
Steam traction	24,431	18,315	7,569
Electric traction	435	549	752
Other means of traction	—	145	88
Passenger trains	12,844	9,603	3,119
Goods trains	10,632	9,317	5,200
Mineral trains	1,093	—	—
Steam ferries :			
Kilometres			
Passengers (journeys)	99	—	—
1st and 2nd class	1,031	1,141	365
3rd class	32,704	35,793	13,683
Military trains.	359	419	113
Total.	34,094	37,353	14,161
Goods (tons) :			
Goods and mineral vehicles	13,886	18,871	5,318

Details with regard to the State Railways, 1919.

Average Length of Trains :

Fast traffic trains	31.8 axles
Passenger trains	18.7 »
Local goods trains	47.1 »
Main-line goods trains	68.4 »
Mineral trains	79.5 »
Average number of goods wagons loaded per day	4,290
No. of axle-kilometres of goods wagons:	
Loaded	445,612
Empty	100,849
Average load-capacity of trucks and covered wagons . . .	13.7 tons
Average load of trucks and covered wagons	6.9 tons
Average time taken per journey ; covered wagons	4.9 days
Average time taken per journey; trucks	7.8 days
Distance covered by goods wagons per wagon-year	11,802 km.

	In 1913	In 1919
Average length of journey ; kilometres	41	41
Average length of journey per ton of goods (excluding minerals) ; kilometres	106	135
Minerals	165	189

Increase of Transport Tariffs on the State Railways,
1913 to 1920.

A.—*Passengers.*

Distance kilom.	1st class %	2nd class %	3rd class %
20	273	211	220
50	300	233	208
100	331	259	208
200	308	240	192
500	246	188	150
1,000	222	169	131
2,000	205	154	119

B.—*Goods.*

Distance km.	Goods per package %	Valuable goods %	Miscellaneous goods per wagon-load %
20	513	390	255
50	396	320	230
100	354	289	236
200	332	274	223
500	319	264	213
1,000	313	260	208
2,000	308	256	204

On the private railways, increases have also been introduced proportionately greater than the increases on the State railways.

Fuel.

A.—*State Railways.*

I.—Locomotives.

Consumption of fuel:		1914	1919
Foreign coal	tons	507,200	346,900
Swedish coal	»	57,700	46,800
Briquettes	»	—	60,300
Coke	»	—	28,400
Peat	»	—	17,700
Wood	cubic metres	—	797,200

II.—Steam Ferries.

		1914	1919
Foreign coal	tons	19,600	15,300

Average annual cost of fuel:

Foreign coal	Crowns per ton	16.41	130.48
Swedish coal	» »	12.59	85.85

B.—*Private Railways.*

		1914		1919	
		Gauge		Gauge	
		Standard	Narrow	Standard	Narrow
Foreign coal	tons	306,997	83,482	220,605	39,758
Swedish coal	»	7,823	—	21,249	2,298
Briquettes	»	1,715	—	5,628	1,140
Coke	»	1,099	712	3,764	1,493
Peat and peat briquettes	»	319	32	30,878	20,395
Wood (not used for locomotive fuel), cubic metres		4,510	3,323	442,511	269,009
Average annual cost of foreign coal consumed; crowns per ton		20	20	133	149

Receipts, Expenditure and Profits for the years 1913-1920.

A. *State Railways.*

Year.	Receipts	Expenditure	Profit (+) Loss (—)
	Millions of Crowns		
1913	88.7	66.9	+ 21.8
1914	93.3	69.9	+ 23.4
1915	118.1	90.6	+ 27.5
1916	150.2	127.8	+ 22.4
1917	163.2	164.4	— 1.2
1918	259.6	304.3	— 44.7
1919	314.2	309.0	+ 5.2
1920	343.0	313.4	+ 29.6

B. *Private Railways: Standard gauge.*

1913	64.8	44.9	+ 19.9
1914	64.4	46.5	+ 17.9
1915	80.2	59.8	+ 20.4
1916	100.2	79.4	+ 20.8
1917	116.8	95.7	+ 21.1
1918	182.6	161.6	+ 21.0
1919	189.2	170.0	+ 19.2
1920 (Jan.-Nov.)	197.4	170.5	+ 26.9

C. *Private Railways: Narrow gauge.*

1913	7.4	13.3	+ 4.1
1914	17.9	14.1	+ 3.8
1915	20.4	16.4	+ 4.0
1916	25.1	20.6	+ 4.5
1917	31.8	26.9	+ 4.9
1918	52.8	47.2	+ 5.6
1919	59.4	55.0	+ 4.4
1920 (Jan.-Nov.)	58.6	53.6	+ 5.0

II.

NAVIGATION.

With regard to the ports, Annex 1, attached, contains the relevant information, giving figures for shipping and barge traffic in 1913-1918 in the ports of the kingdom, the use of which is subject to dues fixed by the King.

With regard to the state of the shipping, it should be observed that during the war the upkeep was necessarily neglected to a certain extent. But it is among the older groups of ships that the greatest decrease has occurred, while at the same time a large amount of new tonnage, generally of the highest quality, has been constructed; these new ships consist mainly of steamships and large sized motor-boats, so that all in all the Swedish merchant fleet can be said to have been renewed in the period between the beginning of hostilities and the end of 1920.

The amount of sea traffic can be seen from Annexes 2 and 3, the first of which gives the gross revenue in crowns of the Swedish merchant fleet during the years 1913-18, and the second the figures for direct navigation between Sweden and other countries during the same period. The Information Section of the Central Board of Trade has also drawn up a table with regard to the regular services maintained between Sweden and other countries by the Swedish shipping companies.

With regard to rates, fuel and the general financial situation of the Swedish ocean shipping, the Central Board of Trade has asked for information through its Information Section from the Union of Swedish Shipowners, and has received replies to questions which the Union in its turn had addressed to the shipping houses affiliated to the Union.

From these replies it appears that the rates vary considerably in the case of different shipping houses.

Thus the increase in passenger rates varies from 100/350 %; rates are subject appear to have increased from 50-300 %. One shipping house stated, nevertheless, that the freights between the ports of Nordland and the East Coast of England had been raised by 465 % during the years 1913-1920, and that the freight for English coal had increased during the same period by 680 %.

With regard to the situation before the war, reference should be made to the statement on Swedish ocean shipping, particularly for 1913, which appears on page 168 of the publication called "Kommersiella Maddelanden for ar 1915".

The total consumption of fuel by the merchant fleet in the years 1913-1916 and the first six months of 1917 is shown in Annex 4 (attached). There are no figures available for the subsequent period.

With regard to the origin of the fuel consumed, it is not possible to give precise information. The ships of the trans-oceanic lines procure

their coal naturally in the ports at which they touch during the journey. The coal taken on board in Sweden generally comes from England, and in 1920 from America. In 1913, of the coal imported by Sweden, 95.4 % came from England, while in 1920, 51.6 % was imported from England and 44 % from the United States of America.

The average price of the fuel used in 1914, according to information supplied by the shipping houses, was 12 crowns per ton for coal and 60 crowns per ton for oil.

In 1920 the corresponding figures were 80 and 250 crowns per ton.

For purposes of comparison it may be observed that for the best shipping coal (best Durham screened coal) the average price c.i.f. Gothenburg in 1914 was about 18 crowns per ton, and in 1920 about 161 crowns. The price of fuel used employed in home maritime navigation must be reckoned on the basis of these prices.

Finally, with regard to the general financial situation of maritime navigation, the above replies received by the Union of Ship-owners establish the fact that it is not satisfactory either for ships plying between Sweden and other countries or for home navigation. As a result of the considerable fall in freight, which has not been accompanied by a corresponding fall in the expenses of navigation, the situation to-day is that the receipts do not meet the expenses. Accordingly, a large number of shipping houses have had to lay up their ships. The law regulating the hours of work at sea also created certain obstacles and greatly increased the time required for the journeys.

The fall which has recently taken place in the price of coal and other articles has no doubt improved the situation as regards ocean shipping to a certain extent, but the statements of firms concerned appear to indicate that maritime navigation has still to contend with extremely difficult conditions.

Annex I.

Shipping between Sweden and Other Countries in 1913 *and* 1918.

Countries and continents from which vessels have arrived or for which they are destined.	Total number of vessels arriving and leaving. 1913. Number.	1913. Thousands of tons net.	1918. Number	1918. Thousands of tons net.
Denmark and Faroe Islands and Iceland	38,843	7,867	23,678	5,032
Norway	9,049	924	3,706	506
Finland	4,935	1,204	2,490	344
Russia	1,439	763	147	75
Germany	16,501	7,754	9,463	7,708
Netherlands	1,115	1,452	833	639
Belgium	416	364	—	—
Great Britain and Ireland	6,967	6,300	1.372	1,269
France	822	686	120	125
Spain	168	162	39	26
Portugal	35	39	13	5
Italy	57	51	16	9
Balkan States	41	85	—	—
Other European Countries	1	—	6	1
Total for Europe	80,409	27,651	41,883	15,739
Africa	252	452	32	51
Asia	97	302	8	24
United States of America	86	221	88	204
Argentine	79	204	27	79
Other Countries of America	66	168	40	112
Total for America	231	593	155	39
Australia	57	189	9	27

ANNEX II.

Gross Receipts of Swedish Merchant Marine for Years 1913-1918; Millions of Crowns.

Year.	Steam vessels and motor-boats.						Sailing-vessels.			
	Goods rates		Passenger rates	Postal transport rates	Time charters	Total	Goods rates		Other rates	Total
	Shipping abroad.	Home shipping					Shipping abroad	Home shipping		
1913	115.8	15.6	7.1	0.4	12.5	151.4	8.7	1.8	0.0	10.5
1914	111.2	14.4	8.4	0.5	5.3	139.8	5.3	2.2	0.1	7.6
1915	231.8	17.6	5.6	0.8	15.4	271.2	8.9	2.3	0.1	11.3
1916	392.2	21.1	7.5	0.9	22.9	444.6	20.7	3.0	0.1	23.8
1917	271.8	37.6	7.5	0.7	21.9	339.5	13.7	5.8	0.4	19.9
1918	434.4	59.8	12.2	0.7	96.5	603.6	19.4	7.2	0.2	26.8

Annex III.

Direct Navigation between Sweden and Foreign Countries: 1913-1918.

Vessels arrived.

Year	Steam vessels and motor boats.				Sailing-vessels including those fitted with engines. Barges and boats.				Total number of vessels				Total	
	Loaded		In ballast		Loaded		In ballast		Loaded		In ballast			
	Number	net tons per mile	Number	net tons per mile	Number	net t. per mile	Number	net t. per mile	Number	net tons per mile	Number	net tons per mile	Number	net tons per mile
1913	18,376	10,124	4,143	2,581	7,196	509	10,040	547	25,572	10,633	14,183	3,126	39,755	13,761
1914	17,968	9,843	3,278	1,964	4,972	335	8,086	404	22,940	10,188	11,364	2,368	34,304	12,546
1915	19,221	10,512	3,803	3,197	5,136	349	7,459	300	22,357	10,861	11,262	3,497	35,619	14,358
1916	18,635	10,409	3,546	2,750	6,214	406	5,908	247	24,849	10,815	9,450	2,997	34,303	13,812
1917	10,841	5,593	2,989	3,184	3,346	181	5,128	257	14,187	5,774	8,117	3,441	22,304	9,215
1918	8,935	4,886	2,611	2,547	3,436	205	5,933	329	12,371	5,089	8,544	2,876	20,915	7,965
Vessels left.														
1913	19,426	11,447	3,060	1,262	13,322	931	3,813	127	32,748	12,378	6,873	1,389	39,621	13,767
1914	18,571	10,416	2,715	1,425	9,884	606	3,236	122	28,455	11,022	5,951	1,547	34,406	12,569
1915	20,509	12,363	2,517	1,308	9,904	561	2,885	119	30,413	12,924	5,402	1,427	35,815	14,351
1916	19,440	11,841	2,832	1,392	8,653	526	3,656	151	28,093	12,367	6,488	1,543	34,581	13,910
1917	12,313	8,352	1,524	496	6,092	367	2,427	71	18,405	8,719	3,951	567	22,356	9,286
1918	9,761	6,696	1,834	819	7,029	439	2,219	87	16,790	7,135	4,053	906	20,843	8,041

Annex IV.

Total Consumption of Fuel by Merchant Marine for 1913-1916 and first half-year of 1917.

Year	Solid Fuel						Liquid Fuel.		
	Coal. tons	Coke. tons	Briquettes tons	Peat tons	Wood cubic metres	Rough coal kgs.	Mineral oil. kgs.	Benzine. kgs.	Spirit. kgs.
1913.....	1,082,940	65	—	—	102,907	2,509,675	874,643	39,389	146,524
1914.....	1,012,209	69	—	—	115,183	6,054,129	1,166,609	35,082	191,510
1915.....	1,050,057	5,984	866	540	311,800	9,688,583	1,481,435	61,478	266,655
1916.....	1,080,847	3,286	2,321	7,399	586,643	9,661,225	2,026,402	45,853	496,706
1917.....	340,500	703	1,246	2,300	195,325	2,329,778	1,242,727	28,928	291,319

III.

MOTOR TRANSPORT.

It should be noted in the first place that the automobile was originally mainly used in Sweden — as, no doubt, in other countries also — for sporting purposes and as an article of luxury.

Its use has spread as the motor industry developed, and the improvements effected in the construction of cars have caused the general use to-day of this means of locomotion, which has become one of the most important factors in the transport of both passengers and goods.

The development of the automobile traffic in Sweden during the years immediately before and after the great war cannot be more clearly demonstrated than by the statistics given in the following table, which shows the number of automobiles and motor-bicycles in the country each year between the years 1907 to 1919.

Year	Automobiles	Motor-bicycles
1907	662	362
1909	1,165	785
1911	2,102	1,370
1913	3,889	2,647
1915	5,476	4,673
1917	4,737	3,610
1919	8,506	9,059

The figures in this table were collected by the Commission on Ways of Communication, set up on September 29th, 1911, under Royal Decree in the Ministry of Finance. The figures for the year 1919 occur in the annex to the Draft Decree concerning the tax on automobiles which was submitted by this Commission on August 15th, 1920.

The figures for the years 1907 to 1915 show the number of registered motor vehicles, while the figures for the years 1917 and 1919 show the number of motor vehicles actually in use (that is to say the number of registered vehicles not including those which are not running), this explains the fact that the figures for 1917 are lower than the corresponding figures for 1915.

SWITZERLAND.

I.

RAILWAYS.

General Statement.—The Swiss railways were not disorganised by the world war to such a disastrous extent as those in the neighbouring countries engaged in the conflict. Switzerland was, nevertheless, gravely affected by the war by reason of her situation in the middle of Europe and her lack of direct river communications with seaports. The proposed completion of the Swiss railway system and the upkeep of the lines was considerably delayed, traffic was greatly diminished, and it was impossible for some time to obtain sufficient fuel ; operation expenses increased to an extraordinary extent, and the financial situation of all the railway enterprises, with few exceptions, became very precarious. It will be a long time before the damage suffered in the field of transportation can be repaired and the financial situation restored to its pre-war satisfactory condition.

The statement which follows deals with the Swiss railways with normal and narrow gauges, and rack railways. The thirty-seven tramways, with a total length of 493 km., and the forty-nine funicular railways, with a length of 49 km., are not included in this statement.

Lines and Plant.—The length of the Swiss lines in operation increased during the years 1913-1920 from 5,077 to 5,345 km., an increase of 268 km. The construction of new lines had already commenced before the war. Of the total length, 1,620 km., i. e., about 30 %, are worked by electricity. Among the new lines, the following must be mentioned as being specially important : the mountain railway Frutigen-Brieg, 60 km. ; the Jura Pass between Moutier and Longeau, 13 km., (Berne-Loetschberg-Simplon Co.) ; the Sissach-Olten Tunnel 17 km. (Federal Railways) ; the section Brieg-Gletsch, 47 km. (Furka Co.).

The construction of the Furka Railway, which was almost completed in 1914, had to be suddenly suspended ; the eastern section Gletsch-Disentis of 51 km., finishing in the valley of the Rhine, is not yet completed.

Among the lines in course of construction, mention should be made of the second Simplon Tunnel from Brieg to Isello, 20 km. long, estimated

at 35 million francs in round figures, and the branch line Locarno-Camedo-Domodossola of 14 km. on Swiss territory. The second Simplon tunnel is expected to be completed in 1921.

The length of double tracks on the Federal Railways has increased in the last years from 785 to 888 km. In normal times this increase would have been very much greater.

Bridges, viaducts, etc., are very numerous on the Swiss railway systems. The tunnels have a total length of 282 km., of which 88 km. are adapted for a double track of standard gauge, 112 km. for a single track of standard gauge, and 82 km. for narrow-gauge tracks. The expenditure on the construction of these tunnels amounted to 512 million francs. The total length of bridges is 74 km.

A stimulus was given to electric traction by the shortage and high cost of coal. A programme has been drawn up for the electrification, in stages, of the whole Federal Railway system, i. e., 2,881 kms. The work of electrification has been completed, and trains are now running on a section of the St. Gothard line (91 km). on the Berne-Thun line (32 km.), and on the Brieg-Sion line (55 km). The installation of hydraulic and electric power throws a heavy burden on the Federal Railways. The expenses of two installations on the Gothard line are estimated at 50 million francs. The Barberine works in Valais are estimated to cost 37 million francs. At the end of 1920 the expenditure on installations, running and rolling stock amounted to 146 million francs. The budget of 1921 estimates 52 millions for the same purpose. Electrification will be continued as far as circumstances permit.

The private railways, which are of great importance for the districts which they serve, altered their system of traction, with State assistance, on the basis of the Federal Law of October 2nd, 1919. Several of these enterprises have already asked for financial assistance. Five railways created with the assistance of the Canton of Berne, of a length of 103 km., are now entirely electrified. The electrification of the system of the Rhaetian Railway Company has been carried out over a length of 180 km. and is now approaching completion.

The upkeep of the railway installations had to be reduced, during the critical period, owing to the shortage of labour, material and resources, but this reduction did not in any way endanger the working of the lines. The railway companies which have the necessary means at their disposal are making efforts to put their system into perfect working order. The extraordinary rise in the price of materials was particularly noticeable in the price of steel rails. The 1913 price of 170 francs (franco Bâle) rose subsequently to 500 and even to 600 francs.

As regards rolling stock, the decrease in traffic resulted in a number of locomotive and passenger coaches being idle. It was found possible to lend a certain number of locomotives to foreign railways. On the other hand, the number of goods wagons was no longer sufficient ; the reason for this was that foreign railway systems did not possess sufficient rolling stock for the goods which they sent to Switzerland, and considerable quantities of goods imported from the Mediterranean ports had for a long

time to be exclusively transported by Swiss wagons. It became imperative to increase the number of goods wagons. Between 1913 and 1920 the number of wagons increased from 19,300 to 25,000.

At the end of 1919 there were :

Steam locomotives	1,400
Electric locomotives	141
Passenger motor trains	350
Passenger carriages	4,731
Goods and baggage vans	24,223

The purchase of this material involved an outlay of 354,200,000 fr. Prices have continually increased since 1914. In the pre-war period the price of a locomotive was reckoned on the basis of 1.60 fr. per kg. ; the price rose subsequently to 8 fr. per kg.

The number of railway officials, which in 1913 amounted to 45,386, fell to 41,799 in 1918. In 1919 this number rose to 44,467, in consequence of the increase in traffic and the introduction of the eight-hour day.

In 1919, the staff received in salaries, bonuses and allowances for the high cost of living, about 70 per cent. of the total expenditure (347 million francs), i. e., a sum of 243,600,000 fr. The allowances for the high cost of living alone amounted to about 104,000,000 francs.

Traffic.—In May 1914, the date of the opening of the National Exhibition, the time tables contained a very large number of passenger trains. The passenger traffic, which was developing in a most satisfactory way, was suddenly checked by the declaration of war. During the mobilisation of troops for the protection of the frontier, trains ran according to a military time-table, and civilian traffic was considerably reduced. At the end of 1916, when conditions had altered so as to permit an improvement of the train services, the scarcity of coal began to make itself felt a fresh obstacle to the improvement of the services, and reached its climax towards the end of 1918. The number of passenger trains had to be again reduced. In order to economise coal, it became necessary to use wood and peat. After December 2nd, 1918, the number of trains had to be reduced to a minimum, and for a certain time all traffic was stopped on Sundays. It was not until Easter 1919 that the time-table could be at all improved. The number of trains per year and per kilometre fell from 10,349 to 5,111, and the axle distance travelled by passenger coaches from 103,300 to 44,600 per kilometre. In 1919 it became possible to import coal in greater quantities, but its very high cost prevented any considerable increase in the number of trains.

Passenger traffic between the various countries almost completely ceased upon the declaration of war, and the international trains, formerly so numerous, were abolished. On the Simplon-Brieg-Isello line passenger traffic fell to 2 % of the normal volume.

After the conclusion of peace, opportunities for passenger traffic gradually improved, but obstacles to its normal development still existed ;

in particular, difficulties were experienced with regard to the obtaining of passports, customs formalities, certain hindrances on the railways of neighbouring States, the extreme difference between the exchange rates of various countries, the serious increase in transport rates, and the fact that the former political and economic relations between the various countries were not yet sufficiently re-established, etc. International traffic can only recover as these difficulties disappear.

In spite of these difficulties, internal passenger traffic has not been greatly reduced. The total number of passengers fell from 128,800,000 in 1913 to 106,600,000 in 1918, and rose in 1919 to 114,352,000.

Goods traffic, both from and to foreign countries, was formerly despatched through the various frontier stations, according to the desire of the consignor.

During the period when traffic was greatly restricted, the supply of the country with food and raw materials had to be carried out almost exclusively by the route Cette-Geneva. These difficulties forced the Swiss Government to create a Central Office for Foreign Transport, and also to join the Union for Sea-going Transport, which was specially instituted to facilitate overseas traffic.

The hindrances to a resumption of the international passenger traffic also exist to some extent in the case of goods traffic. Swiss exportation suffers particularly from the abnormal exchange rates and the consequent losses to commerce and industry. It is to be hoped that the coming fall in the price of coal will remedy this state of affairs, and thus facilitate the resumption of commercial relations between the various countries.

Rates.— The continual increase in working expenses forced the railway administrations to make repeated increases in the rates both for passengers and goods. These increases were intended as far as possible to cover the increase in expenditure.

In the case of passenger traffic, these measures began in 1915 with a slight increase in return fares. This was followed by increased rates for all kinds of tickets, the abolition of return tickets at reduced prices, all excursion and circular tickets, and of reduced prices generally, and by the collection of an extra charge for through trains. The last augmentation, which came into force on August 1st, 1920, comprised an increase upon pre-war rates of 55 % for second-class tickets and 45 % for third-class tickets. By these measures, the average revenue per traveller and per kilometre, which was 4.1 centimes in 1913, was raised to 4.9 centimes in 1918, and to 6 centimes in 1919. In reality the increase is still greater, as the average for 1913 was higher owing to the relatively greater use of first and second-class tickets.

During the years from 1914 to 1919, the Swiss railways carried, at very reduced rates, large numbers of sick and wounded soldiers, of convalescent interned men, and of children from the large foreign towns who came to spend their holidays in Switzerland.

From 1916 onwards the goods rates were increased every year. On August 1st, 1920, they were approximately 140 % higher than in 1913.

Another increase resulted from the abolition of most of the special rates. The goods tariff recently introduced is calculated upon a new basis. A differentiated tariff has been chosen in order to cheapen long-distance traffic.

The average revenue per train kilometre in 1913 was 9.3 centimes; in 1917, 10.2; in 1918, 15.2; and in 1919, 19.1.

Experience with the new rates shows that a further increase may not be to the interest of traffic, the reduction of which is beginning to be felt. Moreover, high tariffs favour motor competition for short-distance traffic.

Fuel.—The influence of the war on the coal supply of Switzerland is shown by the following table, which refers only to the Federal Railways (2,881 km.).

		1913	1918	1919	1920
Consumption in tons		701,052	387,024	431,274	510,000
Total cost in 1,000's of frs.		18,957	51,365	67,865	96,900
Cost per ton		27.04	132.72	157.36	190.00
Country of Origin:					
(a) Germany	tons	680,722	384,929	39,000	10,000
(b) England	»			21,500	135,000
(c) Belgium	»		1,035	125,600	15,000
(d) France	»	20,330	1,060	140	190
(e) America	»			153,000	285,000
(f) Saar Valley	»			78,000	15,000
(g) Switzerland	»			14,034	49,810

Until 1918 our coal came almost exclusively from Germany, but towards the end of that year, that country ceased almost completely to supply us, and was replaced by Belgium, America, and, later, by England. In 1920, America, though so far away, supplied us with the greater part of the fuel which we used. The increase of price in the latter year was again most serious; in the case of certain consignments, prices even exceeded an average of 190 fr. per ton. Now, however, the increase and the regularisation of the production of coal, together with the reduction in the cost of transport, permit us to hope for a very considerable reduction in the price of this commodity, a reduction which has, moreover, already begun to be noticeable.

Financial Results.—The influences which so unfavourably affected the working of our railways have produced, with every year that has passed, a still greater effect upon the balances of the various accounts and a disastrous effect on the financial situation of the companies.

Large deficits and considerable debts have resulted from the continued disturbance of the national economy.

The following figures refer to the whole of the Swiss railways (including tramways and funicular railways) for the years 1913, 1918 and 1919.

	1913	1918	1919
	in 1,000's of francs		
Working revenue	279,148	318,237	446,704
Working expenditure	189,380	288,457	383,575
Surplus revenue	89,768	29,780	63,129
Annual balance on profit and loss account	2,677	66,507	39,305
Accumulated balances	3,416	175,915	215,220

The credit balance of the working expenses account for the year 1919 did not nearly equal that for 1913, in spite of the considerable increase in receipts. The excessive increase in working expenses prevents the railway companies from recovering their financial equilibrium.

The credit balance of the profit and loss account for 1913, a modest total, represents what remained of the receipts after all financial obligations—the paying off of mortgages, the strengthening of reserve funds and the allocation of dividends—had been duly met. During the war the majority of undertakings were not able to accumulate and reserve or to pay dividends. A great many were obliged to ask the State and the communes for indispensable loans to enable them to maintain the lines in operation. Others were obliged to regulate their financial situation by agreements with their creditors or by the conclusion of special legal arrangements.

The capital invested in the Swiss railway systems amounted at the end of 1919 to fr. 2,669,291,000, of which fr. 1,1791,748,000 applied to the Federal Railways. These sums do not include subsidies and mortgages, totalling about fr. 185,000,000. These figures show the considerable importance of railways in the country's budget.

To sum up, the injury caused to Swiss railways by the war may be estimated for the period 1914-1919 as follows:

Increase in worthless bills to be redeemed	Fr.	20,800,000
Increase on the debit side of profit and loss accounts	»	210,100,000
Decrease in assets of certain railways	»	8,500,000
Decrease in reserve funds	»	5,500,000
Deficiency in dividends	»	3,000,000
Decrease in yield from reserve funds	»	800,000
Debts and interest cancelled	»	2,500,000
Decrease in the nominal value of shares	»	3,400,000
Total loss	Fr.	254,600,000

To this sum must be added the additional burden laid upon the State finances in the form of increased rates. These charges, estimated according

to the receipts for 1913, amounted to about fr. 150,000,000 for 1919. The depreciation of shares and bonds issued by the railway undertakings should also be taken into consideration.

Conclusions.—The Swiss railway companies will certainly endeavour, to the best of their ability, to assist in the restoration of the economic situation of the world, which has been so long disturbed, as well as in the development of internal and international communications, so that they discharge the obligations imposed on them by their position in the centre of Europe. They will also endeavour to improve their own unsettled financial situation.

In order to give a general idea of the facts which we have just set forth, we have grouped all the figures concerned in a statistical table.

Comparative Data regarding the Technical and Economic Situation of the Swiss Railways, excluding Tramways and Funicular Railways.

	1913		1918		1919		1920 (approx.)		1921 (Budget)
	Steam.	Elect.	Steam.	Elect.	Steam.	Elect.	Steam.	Elect.	
State of the Lines, Total kms	3,975	1,102	4,035	1,310	3,853	1,492	3,725	1,620	
Federal Railways, [1]) ..... ,,	2,770	22	2,859	22	2,774	107	2,774	107	
Standard-gauge private lines ,,	660	226	621	245	600	266	487	379	
Narrow-gauge ,, ,, ,,	495	794	512	976	436	1,052	421	1,067	
Rack Railways ..... ,,	50	60	43	67	43	67	43	67	
Double tracks of Fed. Railways	785		881		888		888		
Tunnels on all Railways .. ,,	232		257		257		257		
— Standard gauge ,,	174		191		191		191		
— Narrow gauge . ,,	58		66		66		66		
Cost of tunnels in 1,000 frs.	428,000		512,000		512,000		512,000		
Bridges on all railways ... ,,	67		74		74		74		
Amount of Rolling Stock.									
Locomotives { Steam	1,538		1,410		1,400				
Locomotives { Elect.	96		124		141				
Passenger Motors.....	322		351		350				
— Carriages.....	4,748		4,760		4,731				
Goods Wagons and Vans ...	19,267		23,525		24,223				

Operating Staff. [2]) Total	45,386		41,799		44,467	
Fed. Railways ..... ,,	37,542		34,547		36,704	
Standard gauge, private . ,,	3,359		2,833		3,244	
Narrow gauge ,, . ,,	3,958		4,168		4,271	
Rack Railways ..... ,,	527		251		248	
	in 1,000's	p. km.	in 1,000's	p. km.	in 1,000's	p. km.
Traffic. Total train kms.	51,720	10,349	27,623	5,111	28,806	5,389
Federal Railways	36,872	13,206	16,299	5,657	17,142	5,950
Stand. gauge private. ,, ,,	6,080	6,862	3,657	4,223	3,788	4,374
Narrow gauge ,, ,, ,,	8,399	6,516	7,509	5,046	7,704	5,177
Rack Railways ..... ,,	369	3,358	158	1,438	172	1,563
Passenger Axle Kms.	524,643	103,337	238,180	44,561	260,089	48,660
Goods Wagon Axle Kms.	775,753	152,798	483,208	90,404	482,651	90,299
Passengers Carried	128,779	25,769	103,642	19,179	114,352	21,394
Federal Railways	91,649	32,956	68,585	23,798	74,419	25,831
Standard gauge, private	18,231	20,576	13,379	15,450	14,820	17,113
Narrow gauge ,, ...	17,826	13,829	21,383	14,370	24,702	16,601
Rack Railways	1,073	9,755	295	2,682	411	3,732
Tons of Goods Carried.	19,349	3,872	19,328	3,578	19,322	3,615
Federal Railways	14,615	5,255	13,269	4,604	13,603	4,720
Standard gauge, private	3,612	4,077	4,609	5,322	4,362	5,037
Narrow gauge ,, ...	1,074	833	1,423	956	1,333	896
Rack Railways	48	436	27	242	24	220

[1]) Including the narrow-gauge railways Bruenig-Lucerne-Interlaken, 74 kms.
[2]) Employees and workmen.

II.

INLAND NAVIGATION.

The Rhine is the principal navigable waterway, which gives Switzerland access to the sea. A few words on the subject of traffic on the Rhine may therefore be of interest.

During the war, Rhine navigation was completely isolated and was cut off from maritime traffic. This state of affairs was only modified at the beginning of 1919, after the left bank of the Rhine had been occupied by the Allied Armies. After this date it became once again possible to utilise the river for bringing supplies to Switzerland, and the Allies themselves made use of this waterway. After the signature of the Treaty of Versailles, when the blockade was raised, Germany in her turn commenced to import great quantities of cereals by means of the Rhine.

During the whole of 1919 and the first half of 1920, the railway communications between the ports of Antwerp-Rotterdam and Switzerland were passing through a severe crisis. An enormous quantity of goods which ought to have been sent by rail were sent by the Rhine.

This influx of goods had the effect of increasing to an extraordinary degree the cost of rates for navigation on the Rhine. In the case of traffic between Rotterdam-Bale, Antwerp-Bâle, Ruhrort-Bâle, Mannheim-Bâle, Strasburg-Bâle and Kehl-Bâle, these rates considerably exceeded railway rates. The plant used for the navigation of the Rhine suffered far less from the war than did the railway plant, although far less attention was given to its upkeep than in normal times. This disadvantage had, however, very little influence on the returns received from the Rhine mercantile flotilla. The same applies to the ports and their equipment.

On the whole, the Rhine navigation was able to cope with the considerable revival of traffic. Difficulties only arose at the ports of arrival when the railways were unable to forward the goods to their destinations. It is true that the period of low water, which was exceptionally long between September and December 1919, and which was immediately succeeded by a heavy flood, brought about a crisis of unprecedented severity in the Rhine traffic. But as soon as the river had returned to its normal level, it became possible to surmount all difficulties and to satisfy all requirements. As the river route no longer had to compete with the railways (in consequence of the insufficiency of the latter), the navigation companies were able to establish their tariff for freights at a low rate which gave them large profits. It was the German shipowners who benefited chiefly from this state of affairs. The Swiss and French navigation companies which were constituted after the conclusion of peace, and did not yet possess large fleets of barges, etc., were unable to make equally large profits. Nevertheless they prospered during the first years of their existence.

If, however, the general crisis continues, it cannot be doubted that their situation, which is at present satisfactory, will change considerably for the worse.

From the second half of the year 1920 onwards the renewal of activity on the railways became more and more noticeable. By reason of the favourable situation of the Swiss exchange rates, the cost of transport by rail from North Sea ports to Switzerland fell to an extraordinarily low figure ; as a result the Swiss traffic was once more diverted from the river to the railways and a considerable fall took place in the Rhine freights.

The economic crisis in Europe during the months of November and December 1920 and January 1921 had an important influence on the Rhine navigation services. It is no exaggeration to say that at the present time they are passing through an acute crisis. The extreme state of stagnation which characterises it at present is chiefly due to the scarcity of goods to be transported. For, in spite of the very low level of the river during the last few months, the Rhine fleet could cope with a far more intense traffic than that with which it has to deal to-day.

All the ports on the Rhine, from its mouth to Bâle, are capable of satisfying requirements, upon condition, however, that the railways can bring the goods to the ports, or, on the other hand, can re-forward the goods unloaded on the quays. The technical equipment of the Rhine ports have not suffered from the war. The increased cost of living and the demands of the worker have, however, considerably increased the cost of labour in the ports. In addition, the regularity and reliability of the labour—which are decisive factors in the domain of transport—have considerably deteriorated since the conclusion of peace.

Immediately after the Armistice had been signed, Switzerland undertook the construction of the port of Bâle-Petit-Huningue. The cost was estimated at about 10 million francs. This port will be ready for use in the summer of 1921. After this date Bâle will be able to provide for the requirements of a traffic of more than one million tons during the navigable period, which consists of 8 months in the year.

The channel of the Rhine, like the port installations, has been little affected by the war. From the sea to Strasburg, the capacity of the Rhine as a navigable waterway is as great as before the war. In the part between Strasburg and Bâle, which had not yet been regularised and which has necessarily to be traversed by vessels entering Switzerland, the state of the channel has become less satisfactory by reason of the total interruption of navigation for several years. The development of navigation in the future will probably result in improving the navigability of the channel to some extent, but in the interests of navigation it is desirable that a regular dredging service should be organised between Strasburg and Bâle. This service, which could be established at a relatively low cost, would make it possible for barges to carry heavier loads, and would also allow a longer period for navigation.

APPENDIX

REPORTS

ON THE

CONDITION OF COMMUNICATIONS AND TRANSIT AFTER THE WAR

SUBMITTED TO THE BARCELONA CONFERENCE

BY

DR. MAGGIORINO FERRARIS

Member of the Italian Senate
Vice-President of the Conference

AND

M. SALVADOR DE MADARIAGA

Mining Engineer
Technical Expert of the Spanish Delegation to the Conference
on the Conditions of Routes of Communication and Transit after the War.

REPORT

BY

M. Salvador de MADARIAGA.

From the very outset of their work, your Rapporteurs feel deeply impressed as to the difficulty of the task with which you have honoured them. The materials from which they have to construct their report are, by their very nature, of a most disconcerting diversity, all the more so because they have been selected and arranged in different countries, approached from different aspects, conceived in the most varied states of mind and, in certain cases, directed to most divergent ends.

There is in this diversity an intrinsic element which is, no doubt, inevitable. It is impossible to reduce the whole question of transport to a system of technical reports. One might as well attempt to reduce the earth to a network of parallels and meridians. The *genius loci* applies just as much to railways and waterways as to those manifestations of the immaterial life of peoples in which we are most accustomed to observe its influence, and the task of your Conference and of those which will follow it would be much easier, but also much less captivating, if there were none of these natural forces acting in opposition to the tendency of the age towards universal co-ordination of national activities.

It will always remain impossible to regulate this elusive vital element. We feel, however, that it is possible here and now to attempt to limit its sphere of action with regard to one definite point : the formation of a periodical compendium of information as to the condition of transport in all countries affiliated to the League of Nations. The reports which we have had before us are all, without exception, of the greatest interest. Taking them as a whole, however, they show a lack of homogenity which is worthy of remark. To use a technical simile, they are constructed on very different scales. This lack of homogenity is not, in our opinion, solely due to the influences of the *genius loci*. In our opinion it may be largely attributed to the fact that the writers were not accustomed to working together ; the League of Nations will, in fact, have to create its own technical traditions.

But, in our opinion, there is yet another element which contributes to the confused impression resulting from a perusal of the whole set of reports ; we refer to the influence of the war. This influence is visible everywhere. For instance, it is claimed by Chile in explanation of the interruption of the development of her motor-transport— a very striking example, if indeed we are entitled to consider the great Republic of the South, which actually heard the fire of guns from her coasts, as being far removed from the theatre of war. But as we draw nearer to Europe, and more especially to Central Europe, the war becomes more and more predominant in our minds as the circumstance which determines the general character of the situation before us.

Here is a typical example : Transport in and between the Succession States of the Austro-Hungarian Monarchy is being carried out under the most difficult conditions, because all the arrangements in regard to rolling-stock are rendered uncertain by the fact that the various Succession States have only a precarious title to the rolling-stock in their possession, pending the final allocation which is to be made under the Treaty of St. Germain.

We have, therefore, come to the conclusion that what we are asked to consider is not a system of universal transportation operating normally, but a system which has been shattered and overturned by a cataclysm of an almost geological character.

The most important effects of the war on the system of international transportation may be classed under two headings : economic and political.

From an economic point of view, the first fact which strikes us is the increase in the price of coal. Take, for example, a country which is neither very favourably or unfavourably situated in this respect : in 1919-1920 the Danish railways had to pay 121.4 krs. per ton, while in 1913-1914 they paid 20.8 krs. for the same amount.

Next comes the increase in wages, which was combined, in several countries, with a decrease in the working day. Thirdly, the unequal rates of depreciation of the currency, the results of which are in some cases considerable. Thus one country states that it had to pay 1,850 millions merely as the exchange premium on a quantity of coal less than that which—before the war—cost her 55 millions in the same currency. To these results of a domestic character must be added the disorder introduced into international tariffs by the mobility of the exchanges and the fact that these tariffs have become almost prohibitive for certain countries whose currency is much depreciated. Finally, in the economic category, there are difficulties of a technical nature which are also a legacy of the war—as, for example, the bad state of repair and the inadequacy in quantity and quality of the rolling-stock. All these circumstances have involved the railway companies or services in a situation of embarrasment, which they have sought to alleviate by increasing their tariffs, in many cases to a considerable extent.

But despite the gravity of the economic results of the war, we consider that the political lessons which may be drawn from it are of even greater significance. For the war, which refashioned Europe on a new political model, effected, at the same time, a complete transformation in its transport

system. Thus, changes in the general direction of currents of traffic are taking place in those countries which were formerly under the Austrian Crown. The reports of the Czecho-Slovak and Austrian Republics provide us with most interesting information in this connection. At the same time, the new national system set up by the Peace Treaties feel the lack of certain organs which are indispensable for their operation as national railway units. With some of them the general axis of the system fails to correspond to the new requirements of traffic. Others—nearly all—have no frontier stations and must hastily draw up plans for customs houses, must transfer goods stations, and make arrangements for the exchange of rolling-stock.

Thus, we have before us an admirable object lesson. The means of communication—railways, navigable waterways, even roads—appear to us not as mere mechanical installations to facilitate the transport of objects, but as living organisms wrought by the political communities which inhabit and—so to speak—fashion the various countries. Their form and development are not solely the outcome of topographical and technical circumstances and of local economic conditions. They depend rather on the very mind of man. That is to say, that means of transportation—especially those which depend most directly on the conformation of the country, such as railways, canals and even small coasting traffic— are closely fashioned by national realities. They may be said to represent the type of international problem in which the importance of local factors is most deeply felt, and in which the negotiator runs the least risk of wandering into abstractions. In short, transport systems form part of the body of nations. They are their arterial system. This gives rise to two tendencies to which attention must be particulary drawn.

The first is a tendency towards regional groupments by zones, either local or sub-continental ; this is a direct result of the physical characteristics of the means of transport.

The second is a tendency to make the means of transport as independent as possible of foreign countries, particularly as regards fuel. This tendency encourages the development of national systems of waterways and, particularly, the electrification of railways in countries which do not produce much coal.

It is hardly necessary to say that both these manifestations of the *genius loci* are highly beneficial to the political and economic development of the world. They are, in our opinion, a very happy augury for the League of Nations, for international society must not be conceived as an artificial super-structure, of which the nations are the foundations, but as a universal organism resulting from the harmonious combination of organisms whose sphere of action is more limited.

These localist tendencies, however, contain an element of limitation which, though necessary and healthy, needs to be corrected by the tendency towards universality, the strength of which in our modern world is represented by this Conference. It is, therefore, indispensable to the good government of the world that this universal tendency should also possess a means of expression and of action. Just as the national and the

continental spirit acting though the medium of the States endeavours, to fashion local transportation in their image, so it is necessary that the universal spirit, acting through an organism also universal, be enabled to fashion in its image the world transportation.

As to the exact principles which should guide the creation of such an organism, I trust that the Conference will allow me to leave the task of describing them to my eminent colleague Senator Ferraris.

April 19th, 1921.

REPORT

BY

Dr. Maggiorino FERRARIS.

Gentlemen,

The report which has just been submitted to you by our distinguished colleague M. de Madariaga shows the influence exercised by the war on the ways and means of communication and transit, and more especially on railways in the various countries of the world.

It appears, however, open to question whether the war brought about changes either of a material and technical nature, or of a moral, economic and legal order which are so important and so lasting as to be considered as new elements in the life of the nation.

It does not seem possible to maintain that the war effected any very remarkable change or progress in the organisation or operation of the means of communication and transit, except perhaps in respect of aerial navigation. The notable progress made in military aviation brought the machines and apparatus of aerial navigation to such a pitch of perfection that extremely important and permanent consequences are already apparent in the economic relations between the various nations. It marks a great step forward in the history of communications, and it will, we trust, confer benefits on the human race which will compensate it for the ravages, ruin and desolation inflicted by aviation during the war. But aerial navigation does not fall within the scope of our activities, and we can only take note of the hopes and expectations which are bound up with this new system of communication.

There is another field in which progress of a material and technical nature has been made, largely as a direct outcome of the war, especially from the point of view of practical application.

In the first place, the high price of coal and the difficulty experienced at times in obtaining supplies of coal have given a notable impetus to research work on the subject of electric traction by land and by inland waterways, and also in regard to the substitution of liquid fuels for coal

as a source of motive power for railways and maritime transport. For instance in various countries, vast schemes for electrifying railways are projected or being carried out, and we may expect that substantial progress in this sphere will shortly be realised.

A second fact, which is equally apparent, is the improvement effected by the war in inland waterways and in the equipment of seaports. The transport capacity of various countries has consequently undergone a considerable increase. The remarkable improvement effected during the war in the French ports as the result of a policy carried out with a very definite object and with assiduous efforts will suffice as an example. You will find extremely interesting information on this subject in the memorandum submitted by the French Delegation. Belgium and the Netherlands also continue to make extensive improvements in the equipment of their ports.

In addition we must note the efforts made by France and Italy during the war to increase and improve their inland navigation, and the work carried out by Great Britain on the Tigris and Euphrates. All these improvements may now be enjoyed in time of peace. Nor should we, in fairness, omit mention of the investigations and the work which Italy is at present carrying out with respect to the navigation of the Po. With this work, which will be one of the great achievements of our time, the name of M. Bignami, the distinguished Italian Delegate to this Conference, is honourably associated.

But, from the point of view of the development of means of communication, perhaps the most conspicuous feature of the war was the greatly extended use of motor traction for the transport of both passengers and goods. This marks the most recent advance in the sphere of transportation. Motor traction appears likely to assume exceptional importance for passenger traffic in undeveloped countries and in the colonies, and to supersede commercial railways and tramways, which are at present too costly. Even in England, motors are at present being run successfully along the main lines of communication, in addition to the railways. The reports submitted by the United Kingdom of Great Britain and Ireland is extremely interesting, especially as regards the transport of goods by motor-lorry. A kind of clearing-house has even been established to facilitate the collection and distribution of goods intended for motor-transport. The reports sent in by Sweden, Czecho-Slovakia, France and other countries also furnish us with important information on the subject and with opinions to which I would direct your attention.

To sum up, these four facts: Electric traction, the use of liquid fuel, the progress of inland navigation, and above all, of motor transport, appear to represent the most important results of the development of the means of communication and transport which have been bequeathed us by the war.

The immense increase in the merchant service of the United States of America would also be a subject worthy of mention if this form of transportation came within the sphere of our labours.

* * *

If we now pass on from technical matters to questions of an economic and administrative nature, the first fact which strikes us is the more extensive and closer co-ordination to be observed between the various communication and transport services. Railways, navigable waterways, and ports are now being worked with a far more effective system of central control. This is the inevitable result of the war. It is illustrated, for example, by the formation of a Ministry of Transport in England.

But in my opinion, the supreme legacy of the war is the establishment of the League of Nations. I consider that the League of Nations is destined to achieve notable results of an economic and administrative nature in the field of communication and transit.

At the first meeting of the Council of the League of Nations at Paris in January 1919, a meeting which marked the beginning of the practical work of the League and which I attended as Delegate for Italy, I declared my firm conviction that not only the future, but possibly the very existence of the League depended on the action it would be able to take in economic and social questions, and on the influence it would be able to exert in such matters. The great problems of labour, credit, and communications and transit, could not, in my opinion, be solved without the beneficial and progressive influence of the League. No one among us is unaware of the atmosphere of indifference and scepticism in which the League is carrying on its work. But I, like M. Neujean, am one of those who have faith in the League of Nations. An institution which, in the short space of nearly a year, has given us those three great economic conferences: the International Seamen's Conference at Genoa, the Financial Conference at Brussels, and the General Conference on Communications and Transit at Barcelona, indeed furnishes evidence of its active interest in the solution of those grave economic questions which are at the root of post-war international reconstruction.

The great historical event of the creation of the League of Nations raises a preliminary question which is none the less of a fundamental nature: What influence will the League exercise on the organisation and future operation of the means of communication and transit ?

That was the question which occurred to me as I read the reports submitted by the various countries with keen satisfaction.

In what direction is the League of Nations to exercise a useful influence on the development and organisation of the means of communication and transit and, more especially, on that of railways ?

In attempting to answer this question from a purely personal point of view, I have no intention of putting forward a programme, still less of confronting you with proposals or resolutions. I would merely ask your permission to give the main outlines of some ideas which might be investigated at some future date, and, possibly, carried into execution.

Sir Francis Dent has very truly said, in his statement on the railways [1], that in the future, we must pass from the system of conventions between groups to a system of international conventions. I will venture to add that the same idea occurred to me when reading the reports sent in by the various countries and when also listening to the important statements which were made at our meetings, notably by M. Etienne, Deputy-Director of the Central Office of International Railway Transport, and by various representatives, among others by the Brazilian Delegation (M. Barboza Carneiro) and by the Czecho-Slovak Delegation (M. Lankas).

It is essential that we should build, in our scheme, on organisations that are already in existence and working well in practice—*e.g.*, the Central Office at Berne, and similar institutions such as the clearing-house in England, and the Association of German Railways *(Verein Deutscher Eisenbahnverwaltungen)*. The fundamental principle of these institutions is that, though the sovereignty of each State and the autonomy of each railway administration must be scrupulously respected, those services and activities which are of an essentially international character must nevertheless be operated jointly whenever their co-ordination is likely to prove of material advantage to the progress of communications, to facility and rapidity of exchange, and to economy in working.

You are all familiar with the results which have been obtained by that great and magnificent institution the Central Office at Berne, both as regards international traffic and in achieving technical unity, which in itself represents an advance of exceptional importance. Up to the present, however, this organisation has only attempted to deal with the transport of goods ; the next step to be taken would therefore be the signing by the various States of Europe of a draft international convention, similar to the convention on the transport of passengers and luggage. The latter instrument was drawn up by a conference which met at Berne in May 1911, and still requires to be converted into a regular convention.

The improvement in the international transport of passengers is indisputable, especially in respect of *trains de luxe*, and fast express trains. But the main feature of the present period is the continually increasing importance of third-class passenger traffic in home transport. This remarkable development started in England and is constantly extending to other countries. If the adoption of an international convention on the transport of passengers should succeed in bringing about a similar progress in international traffic, especially in the case of second and third class passengers, a practical and beneficial result would have been achieved, which would be in accordance with the liberal and democratic spirit that characterises our age.

But an event of such importance as the establishment of the League of Nations should give a fresh impetus to the tendency towards co-ordination and technical co-operation which was initiated with such signal success by the Berne Office. I repeat that I have no intention of submitting

[1] See Verbatim Records and Texts relating to the Recommendations for the International Regime of Railways (Barcelona Conference, League of Nations).

proposals, nor of formulating a programme; I will merely outline some of the methods by which the gradual work of progress and international co-ordination, as regards means of communication, might be developed.

Judging by the example and experience of the already-existing international bureaux and institutions, the main branches of collective international activity in the sphere of communications and transit may be grouped as follows:

(a) Enquiries, data and information;
(b) Time-tables, conditions of transport and tariffs;
(c) Management, bookkeeping, and settlement of accounts;
(d) Commercial service.

The mere enumeration of these headings gives us some idea of what may be achieved in actual practice, both from the scientific and the practical point of view. No one can question the desirability of having a common centre for observation and investigation, for collecting laws, official documents, publications of various bodies, statistics, schemes which are under consideration, and all documents referring to the development, progress and operation of the means of communication and transport in the various countries of the world.

Much could undoubtedly be done by common collaboration to facilitate the drawing-up of time-tables and the gradual adoption of homogeneous, if not uniform, tariffs, especially for goods traffic.

I have already called attention to the very long and valuable experience of the railway clearing house in England and the adoption of a similar system by the Association of German Railways. The existence of these institutions, which deal with questions of bookkeeping and the liquidation of the accounts of the international traffic of various administrations, suggests that a number of countries, particularly in Western Europe, should begin to take steps in the same direction.

It is particularly in connection with commerce that a wide field is offered for collective, productive and practical work in regard to means of transportation of very kind, especially railways. Without seeking to interfere in the autonomy of any administration, we can still perceive the desirability of a central organisation which would receive schemes for new construction, applications for, and offers of, capital, fixed material and rolling-stock, coal and various raw materials which are necessary for operating railways. While respecting the entire liberty of the various administrations to conclude engagements with each other, one must recognise the advantages which might derive from an organisation of this nature, as a means for economizing time and expense and facilitating the supply of materials.

It may be useful, at this point, to instance a few cases which have occurred in actual practice. A great railway system was suffering from a serious shortage of sleepers during the war. At heavy expense it organised a mission to Brazil, where sleepers were obtainable from the forests; but the quantity of sleepers required was not commensurate with the cost of laying a railway to the sea. In such a case a central office could have

arranged for several railway administrations to participate in this undertaking and for the cost to be divided among them. Another case occurs to me : A company required a large number of beech-wood panels for railway carriages and was also greatly in arrears with the repair work on its locomotives. Protracted enquiries and several voyages to Europe had to be undertaken before the work could be completed. Had there been a central office dealing with questions of supply and demand, a single letter would have sufficed.

It is even wosth considering whether such an institution might not be capable of arranging for the mutual borrowing and utilisation of trucks by various railway administrations. At present each administration is compelled to maintain a reserve of trucks for periods of intensive activity for the harvest or for traffic with the ports. When, however, the period of increased activity is not the same in two or more countries, it should be possible for one administration to borrow from others any stock which is available at the time. This idea is merely put forward for consideration, not as a definite proposal.

The birth of the League of Nations has led to the foundation of a new public institution of a world-wide character. One should, therefore, look forward, in the common interests of all countries of the globe, to a period in which an organisation embracing the different countries may effectively and successfully complete the work begun by the international services. The benefits of this organisation, which should, in different degrees, extend to railways, navigable waterways, etc., will be still more clearly recognized when maritime transport is made the subject of an international agreement with a view to increasing the facilities for trade and intercourse among nations.

* * *

The terrible calamity which has overtaken mankind has given birth to the hope that a strong sense of unity and a desire for co-operation, in the idealistic and the economic spheres, might soon be awakened among all nations.

The great historian who so ably and sympathetically presides over our labours may, with his profound insight into the minds of men and nations, one day explain to us why the hopes which were formed during the war of the growth of a spirit of co-operation and a sense of kinship among nations in the period after the war, have been so slowly and so painfully realised.

Fortunately all nations appear to feel the urgent need for closer relations in the economic sphere. A striking proof of this fact is furnished by the success of the work of this Conference, which, to use the happy expression of our distinguished colleague M. Adatci, recalls the work of the Congress of Vienna [1].

[1] See the *Verbatim Records and Texts relating to the Convention on the Regime of Navigable Waterways of International Concern*, p. 3 et seq. (Conference of Barcelona, League of Nations).

It is, indeed, impossible to ignore the fact that economic relations, by leading to continuous personal intercourse between individuals, are the determining factor in uniting and reconciling men in the world of ideas. For this reason we cannot fail to welcome with the greatest satisfaction the movement towards economic co-operation between States which has been promoted by the League of Nations. We desire to encourage the League to continue on this path, and to express our earnest hope—nay, more, our joyous conviction—that, day by day, it will become a more potent instrument for achieving unity, economic progress, and general well-being on behalf of suffering humanity.

April 19th, 1921.

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LEAGUE OF NATIONS.

Advisory and Technical Committee for Communications and Transit.

REPLIES OF THE GOVERNMENTS

to the

Enquiry on the Application of the Resolutions relating to

PASSPORTS

CUSTOMS FORMALITIES

and

THROUGH TICKETS

GENEVA 1922.

LEAGUE OF NATIONS.

Advisory and Technical Committee for Communications and Transit.

PASSPORTS.

The Council of the League of Nations having been requested by the Conference of Ambassadors to enquire into the difficulties regarding international passenger traffic, the Provisional Committee for Communications and Transit convened a Conference which was held at Paris from October 15th to 21st, 1920, at which 22 States were represented.

The various measures recommended by this Conference were embodied in a resolution adopted on October 21st. On November 18th, 1920, the Secretary-General of the League of Nations forwarded this resolution to all the States Members and to the Governments of certain other countries, requesting them to inform him, within a period of three months, what measures the various Governments would take to give effect, as from July 1st, 1921, to all or part of the recommendations embodied in this resolution.

On May 7th, 1921, the Secretary-General of the League of Nations again wrote to the States which had not yet replied, requesting them to inform him what action they proposed to take.

During its first session, held at Geneva in July 1921, the Advisory and Technical Committee for Communications and Transit took the matter up and formulated a draft resolution which it submitted to the Assembly of the League of Nations.

The question regarding the resolutions of the Conference on Passports, Customs Formalities and "Through Tickets" having again been submitted to the Assembly of the League of Nations, the latter adopted the following resolution:

S. d. N. 700 4/22. Imp. Atar.

"The Assembly, having been informed of the report of the Advisory and Technical Committee for Communications and Transit on the action taken by the Governments with regard to the resolutions adopted by the Conference on Passports, Customs Formalities and 'Through Tickets,' which was held in Paris, October 1920, observed with the keenest satisfaction that a certain number of States have already put into force part of the measures — so important for international relations, and unanimously recommended by this Conference — tending towards the simplification of formalities connected with the obtaining of passports and visas, the reduction of passport prices, and the unification of passport regulations.

"The Assembly draws the attention of all States which have not yet been able to adopt the recommendations of the Conference to the necessity of reconsidering the question, and of informing the Secretary-General of the League of Nations of the solutions ultimately reached."

A further enquiry into the question as a whole having thus been decided upon, the Secretary-General of the League of Nations, in a letter dated October 17th, 1921, drew the attention of the Governments to the resolution of the Assembly, requesting each Government to furnish him with information, particularly on the following points:

(*a*) Which of the resolutions of the Conference agreed to by the Government concerned have been carried into effect, and which of these resolutions it is proposed to carry into effect at a future specified date.

(*b*) Whether, on further consideration, the Government concerned is of opinion that it could adhere to all or a part of the resolutions of the Conference which it had previously considered unacceptable and, if so, at what date it proposed to carry them into effect.

The most important measures which the Governments have been invited to adopt are the following:

1. The establishment of a uniform type of passport for all countries ;
2. Passport to be valid for two years or, in exceptional cases, for one journey only ;

3. The fee charged shall not be of a fiscal character;
4. Diplomatic passports will only be granted to persons falling within certain specified categories;
5. Preliminary visas (*i. e.* visas granted by the authorities issuing the passport) will be abolished as far as possible;
6. Exit visas will be abolished for all travellers except nationals;
7. For passports issued for a single journey, the duration of validity of the visa will be the same as that of the passport: for passports issued for two years, the visas will be for one year, in all but exceptional cases;
8. The maximum fee for a visa shall be 10 gold francs;
9. Transit visas will be issued at once, solely upon production of the entrance visa for the country of destination;
10. The duration of validity of a transit visa shall always be the same as that of the entrance visa of the country of destination;
11. The maximum fee charged for a transit visa will be 1 gold franc.

Up to the present, replies have been received from the following countries:

Australia	Italy
Austria	Japan
Belgium	Luxemburg
British Empire	Netherlands
Bulgaria	New Zealand
Canada	Norway
China	Poland
Czecho-Slovakia	Roumania
Denmark	Serb-Croat-Slovene State
Finland	Siam
France	South Africa
Germany	Spain
Greece	Sweden
Hungary	Switzerland
India	Venezuela

Several other countries replied that the question was still under consideration.

A certain number of the countries which sent a reply have adopted all the measures referred to in the

resolution. Other countries have agreed to adopt these measures on condition of reciprocity. Others again are prepared to adopt a great number of the measures. Certain countries, particularly among those situated in Eastern Europe, are at present unable to make any substantial modifications in the system in force.

Conference on Passports, Customs Formalities and Through Tickets.

PASSPORTS.

A. Issue of Passport.

1. The establishment of a uniform type of "ordinary" passport.
2. Duration of validity of passport.
3. Fee to be collected.
4. Diplomatic passports.

B. Preliminary Visas.

5. Preliminary visas. (That is to say, visas granted by the authorities issuing the passport, or by their representatives.)

C. Exit Visa.

6. Abolition of exit visa.

D. Entrance Visa.

7. Duration of validity of visa.
8. Fee charged.

E. Transit Visa.

9. Issue of visa.
10. Duration of validity of visa.
11. Fee charged.

F. Collective Passports.

12. Family passports.
13. Collective passports for emigrants.

Recommendations.

(*a*) Passport exemptions.
(*b*) Abolition of the entrance visa for nationals.
(*c*) Abolition of the exit visa for nationals.
(*d*) Entrance visa for passports not covering all destinations.
(*e*) Facilities for sojourn.
(*f*) Simplification of formalities.

CUSTOMS FORMALITIES.

14. Abolition of examination of registered luggage in transit.
15. Passengers in transit with money and scrip.

Recommendations.

(*g*) International stations.
(*h*) Examination of outgoing registered luggage.
(*i*) Examination of incoming registered luggage.
(*j*) Examination of luggage in general.
(*k*) Limitation of luggage.

THROUGH TICKETS.

Resolution.

16. Through tickets.

GENERAL PUBLICITY.

Resolution.

17. Periodical information.

THROUGH SERVICES.

Recommendation.

(*l*) Through services.

TRANSPORT OF EMIGRANTS.

Recommendation.

(*m*) Transport of emigrants.

AUSTRALIA.

PASSPORTS.

1. Agreed.

2. Agreed.

3. Agreed. The present fee of 10 sh. will be maintained. In regard to the question of the issue of passports to "non-nationals," the Commonwealth Government proposes to follow the principles adopted by the British Government and not in any circumstances to issue passports to persons other than (*a*) British subjects; (*b*) persons the protection of whose interests abroad have been entrusted to His Majesty's Government or the Commonwealth Government by a mandate of the League of Nations; and (*c*) *bona fide* natives of British Protectorates and British-protected States.

In the case of aliens in Australia who at present have no consular representative in this country, the Commonwealth authorities issue a document called "Permit to leave Australia," bearing the holder's photograph, description, and signature, to enable him to comply with the law requiring all persons over 16 years of age who wish to leave the Commonwealth to hold a passport or document authorising his departure. No fee is charged for this permit. It is the practice only to issue such a document in cases where there is no reason to doubt that the holder will be permitted to land at his destination.

4. Diplomatic passports are not issued in Australia, but the status of diplomatic persons will be authenticated by a special visa. The present practice as to diplomatic visas conforms generally with the principles laid down by the Passport Conference.

5. The point of the proposal that "preliminary" visas should only be required in case the validity of the

passport is subject to doubt is not quite clear. An endorsement as to destination is usually given at the time of issue of Commonwealth passports. If the holder is travelling within the British Empire, an Empire-wide endorsement is affixed in all suitable cases. If, for any reason, it is considered desirable to limit the passport for a single journey to a specified country, the document is endorsed to make it valid only for the journey to that country. No extra fees are charged for such endorsements.

6. The Commonwealth law requires that in the case of persons already holding passports who are about to leave Australia for a journey beyond the Commonwealth, the passports shall be vised or endorsed in the prescribed manner for that journey. Holders of British passports bearing Empire-wide endorsements are not required to obtain further visas or endorsements during the validity of the passport unless they propose travelling to a foreign country and a special endorsement is necessary to enable them to obtain the requisite visa from the foreign consular representative concerned.

As regards "non-nationals," it is not proposed to take any general steps at present to abolish the exit visa. As previously pointed out, this requirement is of assistance in connection with the administration of the Commonwealth Aliens Registration Act as in view of Australia's isolated geographical position and the fact that the comparatively few aliens in Australia do not make frequent trips abroad, and as, moreover, a fee of only 2/- is charged for a visa, it is not considered that any serious hardship is imposed by the retention of this requirement.

7. Agreed, subject to the observations made concerning this article by the British Government.

8 and 11. The fee charged for the visa is 2/—, and as the question of transit visas is not one that particularly affects Australia, it is not proposed to make any alteration in the charge.

9 and 10. Agreed.

12. Agreed, subject to the conditions laid down in the reply of the British Government respecting this article.

13. Agreed.

Recommendations.

(*a*) This recommendation hardly affects Australia, although an agreement has already been made with the New Zealand Government dispensing altogether with passport requirements in the case of British subjects (except certain classes of naturalised persons) and simplifying the procedure in other cases.

(*b*) and (*c*) — Visa requirements for nationals have been largely abolished through the adoption of the Empire-wide passport arrangement referred to in the remarks above respecting paragraphs 5 and 6.

(*d*) — The Commonwealth Government endorses this recommendation.

(*e*) — Subject to compliance by holders of passports with the general immigration regulations in force in Australia, the practice of the Commonwealth Government is to act in accordance with this recommendation.

(*f*) — This recommendation does not apply to the Commonwealth.

No observations are offered respecting the proposals in regard to Customs formalities and through tickets, as these matters apparently do not affect Australia.

AUSTRIA.

The Austrian Government has intimated that the resolutions adopted by the Conference on Passports, Customs Formalities and Through Tickets have *without exception* been put into force in Austria as from January 1st, 1922.

The executive measures in question were published in Nos. 258 and 261 of the Federal Legal Gazette ("Bundesgesetzblatt") under Articles 702, 707 and 708.

As regards the question of reciprocity, the Austrian Government states that these new measures are, as a general rule, applicable to all States, even to those which have not yet thought it necessary to introduce measures of reciprocity, with the single exception of fees to be charged for visas as provided for in Article 707.

With regard to Customs formalities, the resolutions of the Conference on Passports have been put into force. The sole reservation to be made relates to the re-exportation of Austrian crowns which, under existing conditions, cannot yet be allowed, and it is impossible to say when this can be done.

BELGIUM.

PASSPORTS.

1. The wording recommended by the Paris Conference has been adopted. Instead of book-form, however, the form of a single sheet has been chosen.

2. Agreed.

3. Agreed.

4. Agreed.

5. The Belgian Government agrees to the measure suggested in para. 5, so long as this measure does not exclude the right of the Belgian authorities, when requested by an alien to issue a visa, to insist that the passport or the visa on it should be certified as authentic by the authority by whom the passport or the visa was issued, or by the local representative of that authority.

6. Agreed.

7. Agreed on condition of reciprocity.

8. Agreed on condition of reciprocity.

9. Agreed. Already in force since December 1st, 1920.

10. Not agreed. A more careful examination of the question has shown that the application of the system suggested would invariably enable the holder of the long-term visa for transit to remain in the country as long as he wishes. With the object, however, of facilitating the journey of persons embarking at a Belgian port, it has been decided to grant them transit visas with the option of remaining two days at the port of embarkation; this privilege has since been extended to passengers in vessels calling at a Belgian port.

11. Agreed. Already in force since December 1st, 1920.

12. Agreed.

13. Not agreed. The Belgian Government has proved by experience that the use of collective passports has given rise to abuses and has caused serious inconvenience to certain holders of such passports who were not permitted to embark, either on account of disease or for any other reason.

Recommendations.

The Belgian Government has carefully noted the subsequent recommendations made by the Paris Conference regarding passports and visas, and will consider under what conditions it might be able to take them into account. It seems needless to mention the fact that since August 1919 entrance visas have not been required for Belgian subjects returning to the country and possessing a regular passport.

CUSTOMS FORMALITIES.

14. Agreed.
15. Agreed.

Recommendations.

The Belgian Government considers that the creation of common international stations, useful in principle though it might be, must be regarded as a special measure, and cannot be made a general practice as appears to be desired.

In Belgium, this examination is carried out at the frontier posts. Before the war, it might be said that no such examination existed, as the absence of any exit duty allowed the greatest freedom in this matter. A return to this liberal regime will be considered when the present restrictive measures on exports have been abolished.

This system of examination has been tried on the line Quévy-Brussels, being temporarily limited to one train in the daytime. A definite decision on the possibility of finally adopting the measure, and on the extent to which it may be applied, can only be found when the results of this test have been obtained. It seems, however, *a priori*, that such a system could not be applied to night trains. As a rule, examination of hand-luggage takes place in the compartments during the intervals at frontier stations. It may be repeated that registered luggage in transit through Belgium is exempt from Customs examination of any kind.

THROUGH TICKETS.

16. Agreed.

THROUGH SERVICES.

(*l*). Agreed.

BRITISH EMPIRE.

PASSPORTS.

1. Agreed. The new type of passport has been in use since July 1st, 1921. Measures are being taken for the adoption of a similar passport as soon as possible by Newfoundland and the Colonies and Protectorates.

2. Agreed.

3. Agreed. At the same time, the British Government would point out that it assumes that in principle a passport should constitute a definite official proof of the nationality of its holder, and, for this reason, while accepting the resolution, it does not intend to issue passports to persons other than:

(*a*) British subjects;

(*b*) Persons the protection of whose interests abroad has been entrusted to His Majesty's Government by a mandate of the League of Nations.

(*c*) *Bona fide* natives of British Protectorates and of British, protected States.

No modification is proposed in the fee (7s. 7d.) now charged for the issue of British passports in the United Kingdom or by the Consular representatives of His Majesty abroad.

4. No diplomatic passport will be issued in the future by the British authorities. A special visa will be granted to diplomatic representatives. The procedure followed at present in granting diplomatic visas is on the whole in conformity with the recommendations of the Conference.

5. Agreed. Nevertheless, it is desirable that it should be clearly understood that this provision does not affect the "endorsements of destination" (referred to in paragraph (*d*), of the "recommendations") — a principle which His Majesty's Government regards as constituting an integral part of the passport system.

6. Agreed.

7. Agreed, except for the provision which requires the various governments to notify the Secretary-General of the League every six months as to the total number of visas given by representatives during the six preceding months. The British Government is of opinion that this measure would result in more special work than its advantages warrant.

8. Agreed. It has, however, been decided to reserve the right of adopting a reciprocal policy with regard to visa fees, should any government impose a tariff exceeding the maximum tariff laid down in the resolution.

9. Agreed.

10. Agreed.

11. Agreed, with the reservation already mentioned in paragraph 8. The new provisions with regard to the British visa have been in force since June 2nd, 1921.

12. Agreed. Since, however, the British custom, up to the present, has been to include in a family passport of this nature children under 16, there appears to be no reason for reducing this figure to 15.

13. Agreed.

Recommendations.

(*a*) Agreed.

(*b*) and (*c*). It is not the practice of His Majesty's Government to require either exit or entrance visas for British nationals properly provided with British passports, and the proposals are therefore accepted as far as concerns exit from or entrance to the United Kingdom, Newfoundland, and the Colonies and Protectorates. It may be added that British passports as now issued are valid for all parts of the British Empire (but not for British Protectorates, protected States, or mandated territories), unless specially endorsed to the contrary.

(*d*) Agreed.

(*e*) Agreed.

(*f*) Agreed.

Sir Maurice Hankey desires to make it clear that His Majesty's Government regard their general acceptance of the resolution and the recommendations as in no way interfering with the right of any portion of the British

Empire to decide upon and enforce its own immigration regulations.

CUSTOMS FORMALITIES.

14. No answer.

15. Although the provisions of paragraph 15 of the resolution (Customs Formalities), so far as they relate to money, are contrary to the statutory regulations prohibiting the export from the United Kingdom of gold and silver coins, His Majesty's Government are nevertheless prepared to adhere to those provisions as far as the United Kingdom is concerned, on the understanding that the right is reserved to limit the privilege in the event of its appearing that it is being abused, with a view to confining it *bona fide transients* and to such amounts of gold and silver coins as are reasonably required for the purpose of their journey.

Recommendations.

(*g*) In favour.
(*h*) In favour.
(*i*) In favour.
(*j*) In favour.
(*k*) In favour.

THROUGH SERVICES.

(*l*) In favour.

TRANSPORT OF EMIGRANTS

(*m*) In favour.

BULGARIA.

PASSPORTS.

1. Agreed.
2. Agreed.
3. The Royal Government of Bulgaria, in view of the extremely precarious financial situation of Bulgaria, cannot consent to a regulation that the fee charged shall not be of a fiscal character.
4. Agreed.
5. As a result of prevailing international conditions, the Royal Government cannot, for reasons of purely domestic policy, agree to the abolition of preliminary visas for passports issued to aliens.
6. The Royal Government agrees to the abolition of the exit visa for non-nationals passing through the Kingdom or remaining there for a maximum period of three days. In all other cases the exit visa may be required from non-nationals as well as nationals.
7. Agreed.
8. Agreed.
9. Agreed.
10. Agreed.
11. Agreed.
12. Agreed.
13. Agreed.

CUSTOMS FORMALITIES.

14. Agreed.
15. Agreed.

THROUGH TICKETS.

16. Agreed.

GENERAL PUBLICITY.

17. Agreed.

The Government of Bulgaria expressed no opinion with regard to the "recommendations."

CANADA.

PASSPORTS.

1. Agreed.
2. Agreed.
3. The present fee ($2) is not of a fiscal character and there is no question of increasing it at the moment. However, the Government reserves complete liberty of action, as, in its opinion, the question is purely one of domestic policy.

Visas are not required by any Canadian law or regulation either for entrance, exit or transit. Where, however, in consequence of the requirements of outside authorities, the convenience of travellers necessitates a Canadian visa on passports issued outside the Dominion, such visas are granted; the fee of $2.00 imposed for this service being practically the maximum fee — ten francs (gold) — recommended. *Canada agrees to all the clauses dealing with Customs formalities, through tickets, transport of emigrants, etc.; indeed, all the measures suggested have now been in force for some years.*

CHINA.

PASSPORTS.

1. The Chinese Government will endeavour to establish a uniform type for ordinary passports; however, in view of the vast extent of the Chinese Republic and the very numerous bodies entitled to issue passports, it will require considerable time to give effect to this measure.

2. Agreed.

3. Agreed.

4. Agreed.

5. These visas are free of charge in China.

6. These visas have not yet been abolished by the European and other States. When they have been generally abandoned, the Chinese Government will adopt the same measure.

7. Contrary to the last provision of this paragraph, China is of opinion that in practice it will prove extremely difficult to render the visas issued valid for widely separated parts of the State.

8. Agreed. The fee charged for the entrance visa is in many cases less than 10 francs gold.

9. Agreed.

10. Agreed.

11. Agreed.

12. Agreed.

13. Agreed on condition of reciprocity.

CUSTOMS FORMALITIES.

14. Part of this clause has already been put in practice in Manchuria since 1916, as a result of the conclusion of special treaties between China, Japan and Russia.

15. Agreed.

THROUGH TICKETS.

16. No objection.

GENERAL PUBLICITY.

17. Agreed in principle. However, in view of the great distance which separates China from the seat of the League of Nations, the period of three months is obviously too short.

CZECHO-SLOVAKIA.

PASSPORTS, CUSTOMS FORMALITIES, THROUGH TICKETS.

The Czecho-Slovak Government informs us that it has accepted all the measures contained in the resolutions of the Paris Conference. These measures have been put into force as from July 1st, 1921.

The resolutions, however, with regard to the fees charged for the entrance visa and the transit visa, are given effect to only on condition of reciprocity.

DENMARK.

PASSPORTS.

1. A type of passport has been adopted corresponding to that recommended by the Conference; as it is necessary, however, that the text of the passport should be printed in four languages instead of two as proposed by the Conference, the passport is not exactly in the form recommended. The new type has been in use since the autumn of 1921.

2. Agreed.

3. Agreed.

4. No answer.

5. The preliminary visa is not required.

6. No answer.

7. As the regulations in force in Denmark presuppose that an entrance visa entitles the holder to a stay of the same duration as the validity of the visa, it has not yet been possible to adopt a general rule rendering the visa valid for one year. Further, on condition of reciprocity, Denmark issued the widest authorisation for the grant, in certain cases, of sojourn visas for one year, but as the regulations for the duration of the visa must of necessity vary in the case of different countries, according as a sudden influx of immigrants is expected or not, it has been found impossible for the present to adopt uniform regulations in this respect.

8. The fee charged for the visa is based on the principle of reciprocity. The fee is never less than 4 Danish crowns. The fee charged for Danish visas will be reduced to the maximum laid down by the Conference as this maximum is adopted in other countries.

9. Agreed, unless for exceptional reasons (undesirables).

10. No answer.

11. No answer.

12. No answer.

13. Although, up to the present, Denmark has not as a general rule recognised collective passports, the Danish regulations in this respect will as far as possible be made to conform with the regulations adopted by the Paris Conference. According to Danish law, entrance visas are not required in the case of nationals nor are visas any longer required between Denmark, Norway and Sweden mutually.

CUSTOMS FORMALITIES.

14. Registered luggage in transit is exempt from all Customs examination in Denmark.

15. Measures of this nature are in contemplation, but as the prohibition of export only covers gold and silver currency over a certain amount, while bank-notes, letters of credit, bonds and other securities are not affected, this question is not of great importance to Denmark.

Recommendation.

With regard to the other recommendations made by the Conference, it should be noted that on the principal railway lines the Customs examination takes place in the train. The Customs authorities are considering putting into practice the other facilities recommended.

THROUGH TICKETS.

16. Since April 1st, 1921, the sale of tickets and direct registration between Danish and German stations has been extended to the majority of large stations. Many through tickets are already being issued and the through registration of luggage via Denmark is already in operation between Norway and Sweden on the one hand and Germany on the other. Further, an arrangement has recently been made with the Dutch railways for the reciprocal sale of through-tickets to points in Norway, Sweden and Germany. Finally, the possibility of extending through international traffic is being carefully considered.

FINLAND.

PASSPORTS.

1. Agreed if all the other States agree.
2. Agreed.
3. Agreed.
4. Agreed.
5. Unnecessary.
6. Cannot accept at present.
7. The Government of the Republic cannot agree to the proposal that the visa of passport which is valid for a single journey should have the duration of validity as the passport itself, in view of the fact that hostile States might take advantage of visas thus given for an indefinite period to send their propaganda agents into the country. As to passports valid for two years, the Government of the Republic finds it impossible to introduce these at present, in view of the difficulties which might arise if a foreigner who had been granted a visa and who had originally justified the confidence thus placed in him was later found undesirable. On the other hand, the Government of the Republic wishes to identify itself unreservedly with the proposal that the number of visas given should be notified to the Secretary-General of the League of Nations every six months. With regard to the proposal that the visas given should always be valid via all frontiers of the country which issued the visa, except for special reasons justified by considerations of health or of national security, the Government of the Republic will be in a position to agree to this as soon as normal relations are established between Finland and Russia.
8. The Government of the Republic approves of the fee proposed on condition that it is also adopted by the

other States, and proposes that the exchange value of the franc should be fixed every three months.

9. The Government of the Republic cannot accept the principle that transit visas shall be issued at once without enquiry, solely upon production of the entrance visa for the country of destination; by so doing it would oblige the competent Finnish authorities to allow Bolshevist agents, for example, to cross the country freely, which might endanger the security of the Republic. The Ministry for Foreign Affairs should therefore have the right to grant or refuse transit visas according to circumstances.

10. The Government of the Republic cannot agree to the proposal in this paragraph and refers to the reasons set forth above.

11. With regard to the proposal contained in this paragraph, the Government of the Republic refers to its statement in paragraph 8.

12. Agreed.

13. Agreed.

Recommendations.

(*a*) In favour.
(*b*) In favour.
(*c*) Not in favour.
(*d*) In favour.
(*e*) In favour.
(*f*) In favour.

CUSTOMS FORMALITIES.

14. Agreed.

15. Agreed.

Recommendations.

(*g*) Agreed.
(*h*) Agreed.
(*i*) Agreed.
(*j*) Agreed.
(*k*) Agreed.

THROUGH TICKETS.

16. No answer.

GENERAL PUBLICITY.

17. Agreed.

THROUGH SERVICES.

(*l*) Agreed.

TRANSPORT OF EMIGRANTS.

(*m*) Finland agrees to the measures proposed for the transport of emigrants under the conditions most favourable to public health.

FRANCE.

PASSPORTS.

1. The form used in France costs Frs. 102 per 1000. The proposed form would cost Frs. 441, and its adoption would oblige the French Government to raise the price of passports. Under these circumstances, the French Government cannot consent to the resolution, especially as there is ground for believing that the passport system will shortly be abolished.

2. Agreed, except with regard to the extension of the validity of the passport beyond two years. A passport, after two years, will be so worn that it will be necessary to replace it.

3. The fee charged for issuing a passport is exclusively a matter for the issuing State. The French passport is good for all countries for the period of its validity. The system in force in France corresponds, therefore, to the resolution adopted by the Conference, to the effect that there should be no distinction between the countries for which passports are issued.

4. Agreed.

5. No answer.

6. In the case of foreigners, the French Government continues to require the exit visa.

7. Agreed, except as regards notifications to the Secretariat of the League of Nations of the number of visas. Such notifications would be a source of unnecessary complications and expense.

8. The French charge for a visa is in all cases Frs. 25. This is approximately equal to the fee of 10 gold francs adopted by the Conference for the ordinary visa. The present French charge, which was introduced by statute, can only be amended by statute.

9. Agreed.

10. Agreed.

11. Same remarks as for paragraph 8.

12. The individual passport is the form adopted in France. This would seem to be the only practical form, since the members of a family may always be separated at any given moment.

13. Agreed. The French Government, however, desires more accurate particulars as to collective passports for emigrants.

Recommendations.

(*a*) The French Government is quite prepared to join in agreements for the abolition of passport formalities. It has already done so with Belgium and Luxemburg, and has approached Great Britain with the same suggestion.

(*b*) Agreed, in force since 1919.

(*c*) Agreed, in force since 1919.

(*d*) Agreed.

(*e*) The formalities connected with sojourn permits (*permis de séjour*) have been very much simplified in France.

(*f*) Joint control can only exist at international stations. The authorities giving a visa for the country of destination cannot undertake the necessary formalities for obtaining other visas, such as those for transit. Such formalities are exclusively the duty of the interested parties.

The French Government has expressed no opinion with regard to the resolutions and recommendations on the subject of Customs Formalities and Through Tickets.

GERMANY.

PASSPORTS.

1. Agreed subject to certain restrictions and modifications. The new system will come into force on January 1st, 1922.

2. Normal duration of validity of passports two years. Limitation to a single journey in exceptional cases. Renewal for periods of one year at a time, up to five years in all from the date upon which the passport is delivered.

3. The fixing of the fees to be charged for the issue of national passports is a matter for the States which issue them. Such fees will be charged without any discrimination between countries for which the passports are issued. When in exceptional cases an identity certificate is issued to persons other than German nationals in place of a passport, the fee collected is not higher than that which is charged on passports.

4. Agreed.

5. Agreed.

6. Not agreed.

7. Not agreed. The German Government is compelled to maintain the existing system of visas. The supply of periodical information to the League of Nations would involve statistical work necessitating considerable expenditure, and the German Government cannot therefore agree to this measure.

It agrees that the duration of the validity of the visa in no way affects the right of sojourn and settlement.

It also agrees that travellers may enter and leave the country at any point on the frontier, it being understood, however, that for exceptional reasons connected with domestic policy, health conditions, or national safety, the visa will be granted only for a specified point on the frontier.

The German Government proposes the insertion of the following provision:

Each country shall publish a list of the chief frontier points for international traffic and shall forward it to the League of Nations: any changes in the list shall also be published without delay.

8. The German Government cannot agree to the maximum fee of 10 gold francs. Under existing circumstances it cannot abandon its right to fix independently the fees for the various categories of visas mentioned under paragraph 7. The new German law on consular fees, nevertheless, provided for considerable reductions in the present fees. There shall be no distinction in the fees charged, either as regards the nationality of the holders of passports, or as regards the frontier point chosen. The German Government reserves the right to make special arrangements with certain States regarding the fees to be collected, and apart from such arrangements, to reduce the fee, in special cases, by 50 %, or to abolish it altogether.

9 and 10. In view of the present situation of Germany, which, owing to its geographical position, must be considered as one of the chief countries of transit, it is necessary to continue for the time being the examination of the nature and frequency of journeys in each particular case.

On the other hand, under the German system of visas, all reasonable wishes of travellers, in cases which are absolutely clear, are granted.

11. The German Government reserves the right to fix the fees. As regards the rest of this paragraph, it calls attention to its observations on the subject in paragraph 8.

12. Family passports granted abroad, and collective passports for emigrants, are recognised and viséd under the following conditions:

(*a*) Family passports granted abroad (husband, wife, children under the age of 15) cannot have a validity of more than 5 years from the date of their issue.

(*b*) As regards fees for visas of family passports, the reservation made in paragraph 8, sections 2 and 3, are applicable.

13. The German Government can only agree to apply provisions 2 and 3 and 5-10 mentioned under paragraph 13 under the reservations made by the German Government regarding these provisions.

CUSTOMS FORMALITIES.

14. No answer.
15. No answer.

THROUGH TICKETS.

16. No answer.

GENERAL PUBLICITY.

17. The German Government is prepared to supply the League of Nations as far as possible with periodical information regarding the regulations in force for passports, Customs and railways, in so far as they concern international traffic.

Recommendations.

The German Government has noted the proposals put forward under numbers *a* — *m* concerning matters of purely national interest, and will take these proposals into consideration in so far as circumstances permit and in so far as their execution is compatible with the interest of the country.

The application of the measure proposed, — namely, that the authorities which provide entrance visas for the countries of destination should also procure the visas for countries of transit, would involve an additional amount of labour for representatives of the country abroad, which the German services, in view of the restricted numbers of their staff, could not at present undertake.

GREECE.

The Greek Government agrees in principle to apply all the measures proposed.

The Greek Government also agrees in principle to the recommendations, and will submit detailed information as to the methods of putting them into practice, together with the date on which they come into force.

The Greek Government has decided not to carry out any examination or Customs inspection of baggage crossing Greek territory by rail and registered "In Transit."

HUNGARY.

The Hungarian Government accepts all the proposals embodied in the resolution, on condition that the other States, particularly States bordering on Hungary, also accept them and strictly apply the decisions taken by the Conference.

INDIA.

1. Agreed.
2. Agreed.
3. Agreed. The fee will be kept at 3 rupees.
4. No answer.
5. No answer.
6. No answer.
7. Agreed, subject to any observations made on this subject by the Government of Great Britain.
8. The fee charged will be 7 rupees.
9. No answer.
10. Agreed.
11. The fee charged will be 1 rupee.

ITALY.

PASSPORTS.

The Italian Government accepts, as a whole, the various measures proposed (some of which are already in force) with the following reservations:

1 and 2. *Ordinary passports.* — The passport is the only effective means at the disposal of the Government for regulating emigration, and preventing immigration into countries where it is impossible to procure work; if extended from one to two years, the duration of the validity of the passport will diminish the effectiveness of this control, which is necessary, not only in the interest of Italy, but also in the interest of the countries of destination. Further, the passport service is connected with the preparation of statistical information with regard to emigration and immigration, which must be published annually with the greatest possible accuracy. There seems to be no disadvantage in leaving it to each country to fix the duration of the validity of its passports; nevertheless, if, with the object of attaining the uniformity at which the Conference aimed, it is considered that a normal period of two years should be agreed upon, the Italian Government will accept this proposal even as regards its own passports, at least for emigration and repatriation, but will limit to one year the validity of passports for persons leaving the Kingdom.

3. The sum of Fr. 10 gold is considered too high for emigrants, especially when the present rate of exchange is taken into account. It is thought that the countries of destination should pay the fees for visas, since these countries benefit by the labour of the emigrants.

4. Italy prefers to keep the present type of passport in two forms (large and small), drawn up in Italian and

containing a photograph, if this is also demanded by other countries.

The Italian Government desires that other classes of persons should have a right to diplomatic passports (the Government has provided a list of these additional classes).

Note. — It has since been pointed out that exit visas for persons other than nationals were abolished as from May 1st, 1921. Further, entrance visas valid for one year will be granted to nationals of States which will guarantee reciprocal treatment for Italian nationals.

CUSTOMS FORMALITIES.

14. Already in force.

Recommendations.

(*g*) International stations. Italy admits the advisability of adopting measures in the direction indicated, but would also point out that it is desirable that Customs formalities should take place on the national territory.

(*h*) The Government agrees to this measure.

(*i*) This measure is already in force.

THROUGH TICKETS.

16. The system in force for tickets on the Simplon-Orient Express line is based on the adoption of a common monetary unit, the French franc, for transportation charges. This system cannot be adopted for all the through international services, already existing, or planned, in connection with the Italian railways, for it is not applicable to these services nor always convenient to adopt.

To improve this system it would be advisable that transportation charges should be always indicated in the national currency of the administration which issues the tickets.

Further, in the Simplon-Orient Express tickets, the charges for that part of the journey which falls within territory other than French are converted into French francs. Charges for those parts of the journey which occur on the lines of States other than that to which the administration issuing the tickets belongs, should

be converted into the national currency of that administration.

THROUGH SERVICES.

The adherence to this proposal must in no way prejudice existing agreements and the advantages which accrue to Italy under those agreements.

In the interest of the communications which the Conference is trying to develop, the Italian Government, in conclusion, desires to make certain special reservations in connection with particular agreements which Italy might conclude with other countries, particularly with neighbouring countries, with the object of securing, on the principle of reciprocity, special facilities for their nationals.

JAPAN.

PASSPORTS.

1. In principle the Imperial Government sees no objection to the establishment of a uniform type of ordinary passport, but it ventures to point out that the difference of character and custom in Europe and America are likely to prove an obstacle to the desired uniformity as far as Japan is concerned. The fixing of July 1st next as the date for the issue of the new passports clearly affords Japan insufficient time to make the necessary changes in procedure and to print and prepare the new forms. Under these circumstances, the Imperial Government is obliged to ask for a delay of at least a year.

2. Duration of validity of the passport:

(*a*) Passport issued for a single journey;

(*b*) Passport issued for two years.

With regard to the subdivision mentioned above, the Imperial Government, with certain reservations, approves of this measure.

3. The fee prescribed for the issue of passports should be as low as possible, and should be levied uniformly without discrimination between aliens and nationals and between the various alien nationalities.

It is agreed that the fee levied should not depend on the nationality of aliens, but, as ordinary passports are not granted to aliens in Japan, the provision in question will not apply in that country.

With regard to the charges made on the issue of passports exclusively for the use of nationals, the Japanese Government desires to reserve the right to collect them at its discretion and according to circumstances.

4. Agreed.

5. Agreed.

6. Not required.

7. The Imperial Government agrees that as regards passports valid for a single journey the duration of validity of the visa should be the same as that of the passport. Moreover, it is suggested that these passports and visas should remain valid as long as the holder stays in the country of destination. With regard to passports valid for two years, the Imperial Government sees no reason why visas for one year should not be issued; nevertheless, it hopes that such visas would be considered valid for an indefinite period. The Imperial Government also accepts the other proposals in this article.

8. Agreed. It is to be noted, however, that the reciprocal adoption of differential tariffs for visas issued to the nationals of the various countries seems inconvenient in practice. The Government therefore intends to levy an equal charge for visas to the nationals of all countries at a fixed charge of less than 10 gold francs.

The Government gives its approval both to the abolition of individual reductions of the fee and to exemptions from visa charges in the case of certain categories of persons, provided such exemptions are expressly subject to the conditions of equality and reciprocity.

9. Owing to special circumstances, the Japanese Government cannot agree to the transit visa, having regard to the fact that this visa would, unless for exceptional reasons, be issued at once without enquiry solely on production of the entrance visa for the country of destination.

10. As regards the duration of validity of the transit visa, the Government has no objections to make; nevertheless it takes the same attitude here as indicated in paragraph 7, that is to say, that the period of validity of the transit visa should be the same as that of the entrance visa for the country of destination. Further, it accepts the reservation according to which the transit visa authorises one or more journeys across the territory, each of normal duration without voluntary interruption of the journey.

11. It agrees that the maximum fee charged should be 1 gold franc. With regard to the remainder of the paragraph, reference should be made to the statement in section 8.

12. It agrees that the preceding provisions should be applied to family passports as they are to individual passports.

13. The fees for visas on collective passports for emigrants will be fixed in conformity with the abovementioned provisions, and will be collected without any discrimination based either upon the nationality of the holder or the points of entry into or exit from the territory.

Even in the case of collective passports, the Government suggests that these passports should be valid for an indefinite period in the country of destination; that each of the States which, as in the case of Japan, issue passports exclusively to its nationals, should be left completely free to determine the amount of the fee charged; that the period of validity of the entrance visa should be determined with due regard to the point of view expressed in paragraph 7, and, finally, that the visa fee and other matters should be determined in conformity with the proposal submitted in the section dealing with individual passports.

Recommendations.

(*a*) Agreed.

(*b*) Up to the present, there has been no visa of this nature.

(*c*) This visa, like that mentioned in the previous section, has not, up to the present, been required in Japan.

(*d*) Agreed.

(*e*) Agreed.

(*f*) Agreed.

CUSTOMS FORMALITIES.

14. Agreed.

15. Agreed. The date from which this measure is to be put into force will be communicated later.

THROUGH TICKETS.

16. No answer.

GENERAL PUBLICITY.

17. Agreed.

LUXEMBURG.

PASSPORTS.

1. Agreed.

2. Agreed to extend the validity of passports to two years, and to provide for extending their validity at the conclusion of each period of two years.

3. The present fee of ten francs (Luxemburg) for passports valid for one year only will be maintained for the two-year passport.

Agreed, together with the other proposals in this paragraph.

4. Agreed.

5. Not required.

6. Neither the passports of nationals nor those of aliens are viséd on exit.

7. Agreed to a general extension of the validity of entrance visas to one year. By agreement between the Governments of the three countries, nationals of Luxemburg proceeding to France or Belgium, and French and Belgian nationals proceeding to the Grand-Duchy have been exempted, not only from the obligation of obtaining a visa for their passports, but also from that of holding a passport. They need only possess identity papers, which are exempt from visa.

8. The Grand-Ducal Government has only charged fees for passport visas since December 1st, 1920. Reciprocity is the determining factor in fixing the fee charged for the issue of a visa to an alien. The Government agrees to the other proposals in this article.

9, 10 and 11. The transit visa does not exist. Once the traveller holds the entrance visa of the country of destination, he may traverse the Grand-Duchy without the Luxemburg visa.

12. Agreed that the family passport shall correspond in every respect to the individual passport, particularly in the matter of fees.

13. The Grand-Ducal Government agrees to the proposals in this resolution, subject to the observations set forth in the preceding number, and on condition of reciprocity, which forms the basis of the Luxemburg regulations.

Recommendations.

(*a*) The Grand-Ducal Government has exempted the inhabitants of numerous districts in the three adjacent countries from passport and visa. These inhabitants need only be provided with a frontier card. The frontier card is issued for a fee of Fr. 1.50.

(*b*) An entrance visa to the Grand-Duchy is not required of nationals.

(*c*) An exit visa is not required of nationals.

(*d*) The Grand-Ducal Government will be glad to follow up any suggestion which may be submitted to it with a view to agreements on this point.

(*e*) Agreed.

(*f*) Agreed.

CUSTOMS FORMALITIES.

14. Agreed.

15. Agreed.

Recommendations.

(*g*) Agreed.

(*h*) Agreed.

(*i*) Agreed.

(*j*) Agreed.

(*k*) Agreed.

THROUGH TICKETS.

16. Agreed.

GENERAL PUBLICITY.

17. Agreed.

THROUGH SERVICES.

(*l*) Agreed.

TRANSPORT OF EMIGRANTS.

(*m*) Agreed.

NETHERLANDS.

PASSPORTS.

1. Not practicable; prefer to retain the present type of passport. There are at present two kinds of Netherlands passports, — one, of a bulky description, for the use of persons obliged by their calling to travel frequently, and the other, thinner in bulk, for the use of persons travelling for pleasure.

2. There are practical objections to the issue of passports for a period of two years. Passports have hitherto been issued for a period of one year with the possibility of an extension of the period when the holder is abroad. A bill has been passed by Parliament making it possible to extend the validity of a Netherlands passport in that country itself.

3. The passport fees are only slightly higher than the cost of production and stamping. There is no discrimination of the kind referred to in the resolution.

4. Agreed.

5. Preliminary visas are not required.

6. Exit visas are not required either for Dutch nationals or foreigners.

7. Owing to the housing and unemployment crisis, it has, up to the present, been necessary in several cases to reduce the period for which visas are valid. Notification to the Secretariat of the number of visas issued would, in view of the visas given by Dutch representatives abroad, entail administrative difficulties and expense which appear to be out of proportion to the utility of the measure proposed. Visas are valid for all places on the frontiers by which travellers enter.

8. A Bill has also been passed to make the fee for Netherlands visas correspond with that named in the resolution. This bill further provides for fixing the visa fee for the various countries on the basis of reciprocity. As soon as this bill has been submitted to the Dutch Parliament a copy will be transmitted to the Secretariat of the League of Nations.

9. The transit visa is abolished altogether, except for subjects of States not recognised by the Netherlands, and for Polish, Lithuanian, Finnish, Esthonian and Latvian subjects.

10. As a rule transit visas are granted for a single journey only to the subjects of countries not recognised by the Netherlands.

11. The above-mentioned Parliamentary bill fixes a fee for transit visas corresponding to that named in the resolution.

12. Collective family passports may be granted; such passports, however, must be provided with a double stamp, and the fee is accordingly higher than in the case of an individual passport.

13. In the case of emigrants no visa will be required.

Recommendations.

(*a*) The Dutch Government is of opinion that it will prove very difficult to give effect to these recommendations. For local frontier traffic there are numerous classes of foreigners — subjects of neighbouring countries — who are not under compulsion to procure passports. It will, however, give this point fuller consideration.

(*b*) and (*c*). The visas mentioned under (*b*) and (*c*) are not required.

(*d*) The Dutch Government raises no objection to granting visas for passports which are not issued for the Netherlands.

(*e*) In favour. Compulsory notification by foreigners to the police of their arrival and departure will shortly be abolished.

(*f*) The Dutch Government has already entered into negotiations with the Governments of adjacent countries as regards first paragraph. The Government is of opinion

that the regulations recommended in second paragraph are impracticable. The regulations contemplated in the third paragraph have already been put into effect.

CUSTOMS FORMALITIES.

14. In favour.

15. In favour.

Recommendations.

(*g*) In favour.

(*h*) In view of the temporary abolition of almost all export prohibitions, measures have been taken to reduce to a minimum the examination at frontier stations of registered luggage on the great international lines.

Apart from the fact that the examination of passengers' outgoing registered luggage at the point of departure in large railway centres would present difficulties, the Dutch Government is of opinion that the travelling public would be seriously inconvenienced by a measure such as has been recommended under (*h*), because the formalities at the point of departure would occasion a still further delay, while the formalities to be complied with at the Customs frontier (which cannot be completely dispensed with on account of non-registered luggage) would not be appreciably accelerated or simplified.

(*i*) It is possible even now to have incoming registered luggage examined at the place of destination when the place in question has been marked as a station where import duties are paid, provided passengers do not have such luggage examined at the frontier station. At present recourse is had to this right only in cases where the passenger is not present on the arrival of the luggage at the frontier station.

(*j*) In the opinion of the Dutch Government, there is no objection at present to the examination of hand luggage on the train in frontier stations, either on entering or leaving the country. It was, moreover, decided some time ago that at a number of frontier stations the examination of outgoing registered luggage might be carried out on the train during the stop. There are, however, objections

to the examination of incoming registered luggage on the train at frontier stations, and also to any examination during the journey.

(*k*) In favour.

THROUGH SERVICES.

(*l*) In favour.

TRANSPORT OF EMIGRANTS.

(*m*) In favour.

NEW ZEALAND.

PASSPORTS.

1. Agreed.

2. Agreed.

3. Agreed. The fee required for the issue of a passport in New Zealand is 10/-.

The Government of New Zealand agrees with the recommendations of the Imperial Government to the effect that passports should not be issued to persons other than:

(*a*) British subjects.

(*b*) Persons, the protection of whose interests abroad have been entrusted to His Majesty's Government by a Mandate of the League of Nations.

(*c*) *Bona fide* natives of British Protectorates and British-protected States.

4. Diplomatic passports will not be issued by the Government of New Zealand, but the status of diplomatic persons will be authenticated by special visa.

5. Preliminary visas are granted in New Zealand free of charge and this practice is to be continued.

6. Regulation No. 2 of the Second Schedule of the War Regulations Continuance Act, 1920, provides that no person over the age of 15 years shall leave New Zealand for any place beyond the seas save in pursuance of a written permit. The permit to leave New Zealand is granted in the form of an exit visa to passport holders, and must therefore remain in force until the above-mentioned regulations are revoked or amended.

7. Agreed, subject to the observations made with regard to this paragraph by the Government of Great Britain.

8. Agreed.

9. Agreed.

10. Agreed.

11. Agreed.

12. Agreed, subject to the observations made on this subject by the Government of Great Britain.

13. Agreed.

NORWAY.

PASSPORTS.

The Norwegian Government would be quite willing to carry out in a general manner the proposals of the Paris Conference, on condition, however, that similar measures were adopted by a considerable majority of other countries, and subject to the restrictions and modifications enumerated below.

The measures in question might, if adopted, be put into force in Norway as from October 1st, 1921, provided, however, that the final drafting of the necessary provisions and their promulgation can be effected before that date.

The special reservations which the Government feels bound to make with regard to the resolutions adopted by the Paris Conference are clearly set forth below:

1. The Norwegian Government has no objection to the suggested establishment of a uniform type of ordinary passport ("international type"). It is, however, of opinion that each country should exercise its discretion in the choice of the quality, the colour, the watermark, etc., of the paper used for its passports, as these are characteristic features which may constitute a means of recognising the issuing country and preventing forgeries. The uniform type of passport should be employed not only by the central authorities, but also by consulates and legations. However, before using the new type, we reserve the right to exhaust the stocks of passports of the form at present in use.

It is desirable that the passports of the new type issued for journeys between Norway, Sweden and Denmark should not contain more than eight to sixteen pages.

2 and 3. The Norwegian Government has no observations to make with regard to the provisions dealing with the duration of validity of passports and the fee charged.

4. According to the provisions of Annex II to the resolution, only the high officials of the household of a Head of State, excluding the subordinate staff, would be furnished with diplomatic passports. The Norwegian Government finds this provision too limited. It considers that when members of the Royal Household travel abroad, all persons accompanying them should be furnished with passports of the same form. It has always been the custom in Norway to issue diplomatic passports to such persons. The Norwegian Government has no observations to make with regard to Nos. 2, 3, 4 and 5 of Annex III.

5. The provision concerning preliminary visas calls for no remark on the part of the Norwegian Government.

6. Not required.

7. The Norwegian Government presumes that in each country the authorities entrusted with the granting of visas will be entirely free to pursue any enquiry which might appear justified by the request for visas submitted to them. The authorities of each country should, moreover, reserve discretionary power to refuse the visas requested.

The Norwegian Government hesitated somewhat in adhering to the proposal of the Conference, according to which visas shall, as a general rule, be granted for one year. It only adhered subject to the express reservation that the competent authorities shall remain entirely free to intervene in the case of any persons whose sojourn in the country is considered incompatible with national safety.

Under this heading the Norwegian Government would refer to the provisions of letter (*e*) of the recommendations of the Paris Conference. It is, moreover, laid down that each State shall every six months furnish certain information to the Secretary-General of the League of Nations. Not agreed: the Government considers that such communications would entail a large amount of unnecessary work.

8. The Norwegian Government has no observations to make on the proposals drawn up by the Conference with regard to fees charged for visas. It presumes, however, that these provisions will not apply when a visa is requested by nationals of States which have not adhered to them. In such cases, the Norwegian Government proposes to continue to determine the fees charged on the principle of reciprocity.

9, 10 and 11. As regards the provisions concerning transit visas, the Norwegian Government, while it hesitates to agree to the immediate issue of these visas without enquiry solely upon production of the entrance visa for the country of destination, would not oppose putting these resolutions of the Conference into practice, provided they are unanimously approved by the adhering countries.

12. Agreed.

13. The provisions dealing with collective passports for emigrants call for no remark on the part of the Norwegian Government.

Recommendations.

(*a*) The passport exemptions contemplated in the first of these recommendations have already been put into practice between Norway and Sweden under agreement between the two Governments. Foreign sailors in possession of identity cards are similarly exempt from passport formalities in Norway. The Norwegian Government will consider the question of granting passport exemptions on a still larger scale in accordance with the recommendation of the Conference.

(*b*) No entrance visa is at present required in Norway for Norwegian nationals.

(*c*) An exit visa is not at present required in Norway either for nationals or aliens.

(*d*) The measures recommended by the Conference with regard to the entrance visa for passports not covering all destinations are already generally carried out by the Norwegian authorities who issue passport visas. The Norwegian Government entirely approves of this practice. But it is of opinion that it is neither necessary nor expedient to conclude special agreements for this purpose with foreign States.

(*e*) The Norwegian Government adheres in principle to the recommendations of the Conference as regards facilities of sojourn. It considers, however, that each State should remain completely free to take any steps it may consider necessary to this end.

(*f*) The Norwegian Government is of opinion that the measures recommended by the Conference with regard to the simplification of passport formalities should, as far

as possible, be carried out. It wishes, however, to make certain reservations concerning the proposal that authorities issuing a visa for the country of destination should undertake the formalities necessary for the obtaining of other visas, as, for example, transit visas. This provision appears inevitably to impose on the authorities issuing visas a task which falls naturally on private individuals who desire to obtain a visa for their passports.

CUSTOMS FORMALITIES.

14. Already in force.

15. The Norwegian Government has no observations to offer with regard to the proposals concerning passengers in transit with money and scrip.

Recommendations.

(*g*) The Norwegian Government has no objection to the suggestion that adjacent States should conclude agreements among themselves for the establishment of international stations in cases where local conditions render this desirable.

(*h*), (*i*), (*j*) The examination of luggage by Customs officials is already carried out in Norway in conformity with the recommendations made by the Conference.

(*k*) The question of the limitation of luggage calls for no remark by the Norwegian Government.

THROUGH TICKETS.

16. Does not affect Norway.

GENERAL PUBLICITY.

17. The Norwegian Government has no remark to make with regard to the recommendation of the Conference that the League of Nations should periodically obtain from the governments and publish any information of practical value concerning the passport system and Customs formalities in force in the various countries.

On the other hand, as regards the publication of information concerning passenger traffic, the Norwegian Government desires to point out that the matter of

establishing new international tickets has, up to the present, been dealt with by the establishment of railway federations grouping the railway administrations of the various countries interested.

According to the organisation adopted by these federations, one of these national administrations performs the administrative duties of the federation and, in agreement with the other administrations belonging to it, publishes the new tariffs for journeys between the States concerned, together with any measures called for by the establishment of new communications between various countries, changes in the price of tickets, etc.

THROUGH SERVICES.

(*l*) The recommendations of the Conference with regard to the establishment of direct international services calls for the same observations on the part of the Norwegian Government as the recommendation of the Conference set forth under the heading "IV — General Publicity, (17) Periodical Information."

TRANSPORT OF EMIGRANTS.

(*m*) The recommendations of the Conference concerning the transport of emigrants do not appear to have any practical bearing on Norway.

However, it need scarcely be said that the Norwegian Government will always make every effort to ensure that emigrants passing through Norway shall enjoy the same facilities as those accorded to emigrants by the countries whose transport services compete with the Norwegian navigation companies.

POLAND.

PASSPORTS.

1. Agreed. The Polish Government cannot, however, at present fix the date for the adoption of the new form.

2. In view of the necessity of definitely establishing the nationality of the present holders of Polish passports, the Government considers it desirable to retain for the time being the passport valid for one year.

3. The condition of the Polish Exchequer renders it necessary to retain for a certain time the fees now levied on the basis of the general Consular rate.

4. The Polish Government has already taken, or will take in the immediate future, measures on the lines laid down in this proposal.

5. The Polish Government has already taken, or will take in the immediate future, the steps necessary to ensure that preliminary visas will only be required by its agents in cases where the validity of the passport and the visa is subject to doubt. Such visas will always be given gratis.

6. The Polish Government feels obliged to retain the exit visa both for its nationals and for aliens, this visa being essential for the lists of persons proceeding abroad.

7. The Polish Government has for some time been considering the introduction of visas valid for several journeys to Poland. Present conditions, it is true, render it impossible to carry out this scheme to the extent desired by the Conference; Polish representatives abroad, however, will be authorised to issue visas for one month, valid for a single journey, and visas for three months valid for more than one journey.

8. The condition of the Polish Exchequer renders it necessary to retain for a certain time the fees now levied on the basis of the general Consular rate.

9. Measures in accordance with Article 9 have already been adopted by the Polish Government.

10. Polish representatives abroad issue transit visas for one month valid for a single journey, and similar visas for three months valid for more than one journey.

11. The condition of the Polish Exchequer renders it necessary to retain for a certain time the fees at present levied on the basis of the general Consular rate.

12. The Polish Government has decided to introduce family visas. However, until further arrangements have been made, the name of the wife of the traveller will be inserted in the common passport only on payment of an additional fee.

13. The Polish Government has already taken, or will take in the near future, measures on the lines of this proposal.

Recommendations.

The gradual restoration of normal international relations will enable the Polish Government to adapt its regulations to the proposals contained in these paragraphs.

CUSTOMS FORMALITIES.

14. Agreed.
15. Agreed.

Recommendations.

(*g*) Agreed.
(*h*) Agreed.
(*i*) Agreed.
(*j*) Agreed.
(*k*) Agreed.

GENERAL PUBLICITY.

17. Agreed.

THROUGH SERVICES.

(*l*) Agreed.

TRANSPORT OF EMIGRANTS.

(*m*) Agreed.

ROUMANIA.

The Roumanian Government approves of the provisions contained in the first part of the Resolutions of the Conference, *i.e.*, the provisions dealing with the type of passport, its issue and the granting of visas.

The provisions of the second part, which were not considered to warrant definite invitations, *i.e.*, the provisions grouped together as recommendations under(*a*) to (*f*), cannot be accepted by the Roumanian Government, owing to the special circumstances of its present position.

The Roumanian Government has expressed no opinion with regard to the resolutions and recommendations on the subject of Customs Formalities and Through Tickets.

SERB-CROAT-SLOVENE STATE.

PASSPORTS.

The reply of the Serb-Croat-Slovene State supplies no information on the subject of passports.

CUSTOMS FORMALITIES.

As regards Customs formalities, the Serb-Croat-Slovene Government has forwarded the text of the Customs Law with regard to examination of luggage in transit.

As a result of the exchange crisis, frequent modifications must be made in the provisions regulating trade and the circulation of foreign currencies. For this reason travellers who have in their possession foreign money must be subjected to measures adopted for the purpose of preventing the export of capital. The Minister of Finance, however, has granted facilities to travellers in transit through the Kingdom by issuing to them at the frontier station by which they enter certificates mentioning the amount of money in their possession, and permitting them to take with them, on their departure, the amount mentioned on this certificate.

THROUGH TICKETS.

As regards through tickets, the Serb-Croat-Slovene Government states that it approves of the paragraph dealing with that question in the resolution of the Conference on Passports.

SIAM.

The Siamese Government has accepted all the proposals in the resolution and they will come into force on July 1st next.

SOUTH AFRICA

PASSPORTS.

1. Agreed.
2. Agreed.
3. Union of South Africa passports are issued only to British subjects. Emergency certificates are issued to persons who are not British subjects when such persons are unable to obtain a national passport, owing to the absence of a Consular representative in the Union, or in cases where a person has lost his original nationality, without having acquired another. No distinction is made between nationals and non-nationals in regard to the fee charged.
4. This type of passport is not issued in the Union and so far there has been no occasion to issue one.
5. Preliminary visas are not granted in the Union of South Africa.
6. Exit visas are necessary to leave the Union of South Africa and, as they form a useful record especially for the police, it is not desired to abandon the practice.
7. As the Union of South Africa has no Consular representatives abroad and as admission to the Union depends on the ability of the intending entrant to meet the requirements of the Immigrants Regulation Act (Nº 22 of 1913), entrance visas for the Union are, strictly speaking, not granted, but visas *to travel to* the Union are granted by His Majesty's Home Government and its Consular representatives abroad, as well as by the passport authorities of the British Dominions and Colonies. Any visas granted in the Union are, however, valid for the same period as the passport.
8. It will be obvious from the preceding remarks that the Union Government does not regulate the charge for visas to travel to the Union, but with regard to visas

granted in the Union to travel to other British territory, the Union Government has adopted the principle of reciprocity, *i. e.* the nationals of each State are charged a fee equivalent to the fee charged a British subject by the Government of the State in question for a similar visa.

9. The remarks under No. 7 apply also in this case.

10. Ditto.

11. The remarks under No. 8 apply in this case.

12. This system is at present in force in the Union of South Africa.

13. This does not apply to Union conditions.

Recommendations.

(*a*) This does not apply to South African conditions.

(*b*) As British passports, unless otherwise endorsed, are valid for travel in any part of the British Empire, entrance visas to the Union of South Africa are not necessary in the case of nationals.

(*c*) Holders of valid British passports leaving the Union for other British territory do not require a visa. (See (*b*).)

(*d*) The Union Government is in favour of this principle.

(*e*) There are no formalities in regard to sojourn in the Union of South Africa as far as persons who are able to meet the requirements of the Immigrants Regulation Act (No. 22 of 1913) are concerned.

(*f*) Conditions in South Africa are such that the adoption of this recommendation in so far as the Union is concerned would not be necessary.

CUSTOMS FORMALITIES.

Paragraphs 14 *and* 15. (Abolition of the examination of registered baggage in transit, and passengers and valuables in transit.)

In connection with the resolutions on these two subjects, the Union Government of South Africa, while being prepared to grant such facilities as far as possible, wishes to state that the circumstances are somewhat peculiar in South Africa, and this being so, such transit facilities cannot always be given, for instance:

(*a*) Basutoland, Swaziland and the Bechuanaland Protectorate do not form part of the Union; nevertheless,

the Customs duties on goods intended for consumption therein belong to the Union Treasury, and must be collected at a Union port, for there are no Customs stations in those territories on the Union borders thereof.

(*b*) The Union has Customs agreements with Southern and Northern Rhodesia under which goods could not pass in transit, say through the Union to Southern Rhodesia, for the first-named is responsible for the collection and the payment over of Customs duties to the Government of the territory of actual destination.

The only exception under (*b*) would be that passengers' baggage may be consigned in bond to warehousing stations in Southern and Northern Rhodesia, but, of course, they are only to be found in the larger centres of population where such trade facilities are required.

The remarks under (*a*) and (*b*) apply to the transit of valuables being, of course, the personal property of passengers and not for the purpose of trade.

Recommendations.

(*g*) As will be gathered from the foregoing remarks on Customs Formalities, the only bordering State South Africa has from a Customs point of view is the Portuguese Province of Mozambique, and, if desirable, there should be no difficulty in arranging for a joint Customs examination, say at Komati-Port. Legislation would, however, be necessary to give the Portuguese authorities jurisdiction to enforce the collection of their Customs duties within the Union of South Africa territory.

(*h*) This recommendation does not apply to conditions prevailing in the Union.

(*i*) This can only be applied to a very limited extent in the Union, for the only Customs stations away from the ports are Kimberley, Pretoria, Johannesburg, Germiston, Bloemfontein, Pietersburg, Middelburg, and Pietermaritzburg.

(*j*) The Commissioner of Customs and Excise cannot agree to the principle of examining baggage on trains. If smuggling is contemplated, the articles to be smuggled are usually contained in accompanied baggage or secreted about the person, especially females, and the examination of the persons of passengers could not be carried out in a train.

(*k*) This is inapplicable to passengers coming into South Africa.

The Union Government Notice No. 1084 of 1914 deals with the baggage of tourists thus:

"A refund of the duty originally paid will be made on all articles not intended for consumption in the Union imported by *bona fide* tourists for their use, convenience or comfort, while in the Union, under the following conditions:

"(*a*) The goods or articles must be re-exported within a period of six months from the date of importation.

"(*b*) Due notice must be given to the Collector of Customs at the port of shipment of the intention to re-export the articles on which a refund of duty will be claimed, and at the same time the owner must produce proof of the original payment of duty.

"(*c*) A certificate must be produced from a proper officer of Customs that the goods referred to therein have been duly shipped."

THROUGH TICKETS.

This item appears particularly to concern States participating in the operation of the Simplon-Orient Express. There are no through bookings made between Europe and South Africa, and it is unlikely that arrangements will be considered to bring such a system into operation until normal times are restored.

The establishment, however, of a Publicity Branch for the Union of South Africa in the High Commissioner's Office is a step leading in that direction, and the matter will doubtless receive consideration when the time is ripe for such a course to be given a trial.

TRANSPORT OF EMIGRANTS.

All long-distance trains are composed of corridor saloon stock throughout the Union of South Africa.

SPAIN.

PASSPORTS.

1. The new type of passport corresponding to that recommended by the Conference has been issued.
2. Agreed.
3. Agreed.
4. No answer.
5. No answer.
6. No answer.
7. Agreed on condition of reciprocity. The diplomatic and consular representatives of Spain abroad have received instructions to carry on the provisions of this paragraph.

With regard to the other resolutions and recommendations of the Conference, a reply has not yet been received from the Ministries concerned.

SWEDEN.

PASSPORTS.

The Swedish Government states that some of the measures proposed by the Conference on Passports have already been applied by the Swedish authorities, but that certain other proposals will not at present be put into force. There would be considerable risk in allowing a number of persons whose presence is incompatible with the interests of the country to extend their stay in Sweden.

As regards the proposal to fix a maximum for the fees which may be charged for the visa, the Swedish Government is perfectly ready to take part in a discussion on this question, if the other Governments concerned are disposed to do the same.

The Swedish Government considers that the establishment of a uniform type of ordinary passport would encourage forgery and fraudulent reproduction. The Swedish Government, however, would also be willing to discuss this point.

The Swedish Government has expressed no opinion with regard to the resolutions and recommendations on the subject of Customs Formalities and Through Tickets.

SWITZERLAND.

PASSPORTS.

1 and 2. The Swiss Government will forward its decision later.

3. Agreed.

4. Agreed.

5. Agreed.

6. Agreed.

7. Agreed as regards passports valid for a single journey. In the case of passports valid for two years, it admits that the visa should be valid for one year in all cases where special agreements are entered into with other States. This is already the case as regards France, Great Britain, U. S. A., Belgium and the Netherlands.

8. The Federal Council gives its adherence to the proposed maximum fee of 10 francs (gold) for the visa issued by its representatives in European countries entitling the holder to make a single journey.

As regards ordinary visas for one year granted by the Swiss authorities to nationals of States with which special agreements have been entered into, a fee of 10 francs (gold) will be charged on condition that these States do not impose a higher charge.

9. Agreed.

10. Agreed.

11. The Federal Council will abolish the present fee of 5 francs and will in principle adopt a fee of 1 franc (gold) for transit visas.

12. Will forward its decision later.

13. The Federal Council will only recognise collective passports for emigrants in transit in the exceptional cases of convoys of emigrants. Emigrants travelling with collective passports will pay the visa fees in accordance with the rules laid down for ordinary passengers.

All that has been said in reply to the various resolutions enumerated in this proposal applies also to emigrants in possession of collective passports.

Recommendations.

(*a*) In favour.
(*b*) In favour.
(*c*) In favour.
(*d*) Not in favour.
(*e*) Switzerland has for a long time granted holders of passports provided with regular visas all such facilities for sojourn as are compatible with her health regulations, economic situation and the interests of her national security.
(*f*) The Federal Council regards as impracticable the conclusion of agreements to enable the authority issuing a visa for the country of destination to undertake the necessary formalities for obtaining other visas, as for example transit visas.

Switzerland is endeavouring to give ever-increasing travelling facilities to foreigners entering or leaving her territory. A very large number of measures have already been adopted to secure this object, and agreements have been reached with adjacent States whenever new arrangements could be made without prejudice to the political, moral and economic security of Switzerland.

The Political Department adds that in Switzerland the Customs and passport formalities generally take place simultaneously.

CUSTOMS FORMALITIES.

14. Agreed.
15. Agreed.

Recommendations.

(*g*) In favour.
(*h*) In favour.
(*i*) In favour.
(*j*) In favour.
(*k*) In favour.

GENERAL PUBLICITY.

17. Agreed.

THROUGH SERVICES.

(*l*) In favour.

TRANSPORT OF EMIGRANTS.

(*m*) In favour.

VENEZUELA.

1. Agreed.
2. No answer.
3. No answer.
4. Agreed.
5. No answer.
6. No answer.
7. No answer.
8. The fee for a visa is 10 bolivars. This fee must be paid on entry into the territory of the Republic and is proved by stamps affixed to the document bearing the signatures of the parties concerned.

No charge will be made for the visa on passports in the case of persons who come as emigrants to take up their residence in the country.

The Venezuelan Government has expressed no opinion with regard to the resolutions and recommendations on the subject of Customs Formalities and Through Tickets.

I. ABOLITION OF VISA.

The necessity of a visa has been abolished for their respective nationals between:

Belgium and China,
„ „ Great Britain,
„ „ Netherlands,
„ „ Switzerland,
„ „ Uruguay.
Denmark and Norway,
„ „ Sweden.
France and Great Britain,
„ „ Netherlands,
„ „ Switzerland.
Norway and Sweden.
Netherlands and Italy,
Netherlands and Switzerland.
Switzerland and United States,
„ „ Lichtenstein,
„ „ Luxemburg,
„ „ Sweden,
„ „ Uruguay.

Moreover, the Belgian Government has abolished the necessity of a visa for the nationals of Italy, Japan, and the United States.

II. ABOLITION OF PASSPORT.

The necessity of a passport has been abolished for Belgian, French, and Luxemburg nationals between Belgium, France and Luxemburg.

Results of the Graz Conference.

The following proposals were adopted by the Conference:

(*a*) Uniform type of passport — The duration of validity of passport shall be at least one year, save in exceptional cases, when issued for a single journey. — The fee charged for the issue shall not be of a fiscal character.

(*b*) Preliminary visas shall only be required in case the validity of the passport is subject to doubt. Such visas shall always be given free of charge.

(*c*) Abolition of exit visas.

(*d*) Entrance visas shall in principle be valid for the same period as the duration of validity of the passport. — The fee charged for an entrance visa valid for one year shall be ten gold francs.

(*e*) Transit visas shall be issued as a rule without enquiry and shall have the same validity as that of the visa of destination. — The fee charged for a transit visa shall be one gold franc.

These various decisions, together with a certain number of others of the same nature, were made the subject of a Convention between the Succession States of the Austro-Hungarian Monarchy.

In the case of certain States, it is provided that ratification should take place in the near future. Provision is further made for the subsequent adhesion of other States.

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LEAGUE OF NATIONS.

Advisory and Technical Committee for Communications and Transit.

REPLIES OF THE GOVERNMENTS

to the

Enquiry on the Application of the Resolutions relating to

PASSPORTS

CUSTOMS FORMALITIES

and

THROUGH TICKETS

GENEVA 1922.

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